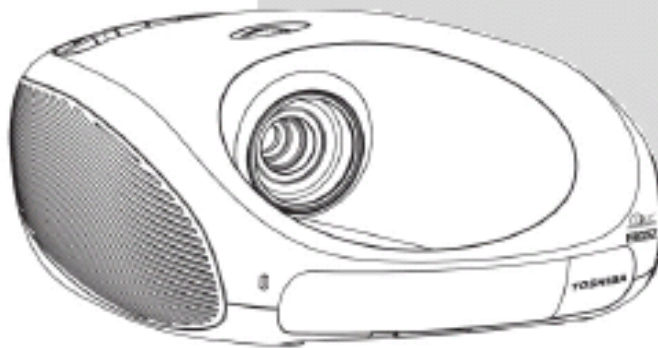


SERVICE MANUAL

DLP DATA PROJECTOR

TDP-ET20



The above models are classified as green product (s) (*1), as indicated by the underlined serial number (s).
This Service Manual describes replacement parts for green product (s). When repairing any green product (s), use the parts described in this manual and lead-free solder (*2).
For (*1) and (*2) , see the next page.

(*1)**GREEN PRODUCT PROCUREMENT**

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing lead.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts. Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(*2) LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the CE industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING

This product is manufactured using lead free solder.

DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !

The melting temperature of lead-free solder is higher than that of leaded solder by 86° F to 104 ° F (30° C to 40° C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product—especially when soldering large components, through-hole pins, and on PCBs—as the level of heat required to melt lead-free solder is high.

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Specification

■ List of general specifications

Item		Specification
Consumption Power		340 W
Input Rating		100~240V AC, 50~60 Hz, 4.0A
Weight		4.8 kg (TDP-ET10) 5.0 kg (TDP-ET20)
External Dimensions		344 x 322 x 155 mm (W × H × D)
Cabinet material		PC+ABS resin
Conditions for usage environment		Temp: 5°C to 35°C; relative humidity: 30% to 70%
Display pixels		1 chip DMD™
Picture elements		409, 920 pixels (854H x 480V)
Lens		F=2.5~2.7 f=7.56 mm
Lamp		High-pressure mercury lamp (230 W)
Projection screen size		38~134 inches
Projection distance		0.5~1.9 meters
DVD player (for TDP-ET20)		12.7mm-high Slim type, slot load mechanism
Built-in 5.1 Speakers		Sub woofer 5W Front/Center 2W Rear 1W
Connection terminal	Control terminal	Serial: D sub 9 pin
	Computer IN terminal	Mini D sub 15 pin RGB
	Component (Y/PB/PR) IN terminal	Y: RCA Pin Jack 1 V (p-p), 75Ω PB: RCA Pin Jack 0.7 V (p-p), 75Ω PR: RCA Pin Jack 0.7 V (p-p), 75Ω
	S-Video IN terminal	Mini DIN 4 pin
	VIDEO IN terminal	RCA Pin Jack 1 V (p-p), 75Ω
	Digital AV IN terminal	HDMI terminal type A
	Analog audio IN terminal	3.5mm dia. stereo mini-jack, 1.5 V (rms)
	Digital audio IN terminal	Coaxial IN: 0.5 Vp-p, 75 Ω
	Digital audio OUT terminal	Coaxial OUT: 0.5 Vp-p, 75 Ω

■ Note

Designs and specifications are subject to change without notice. This model may not be compatible with features and/or specifications that may be added in the future.

■ Separately sold product Replacement Lamp Model TLPLET10.

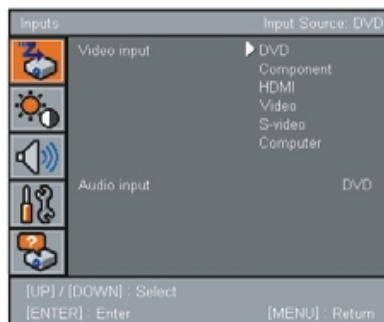
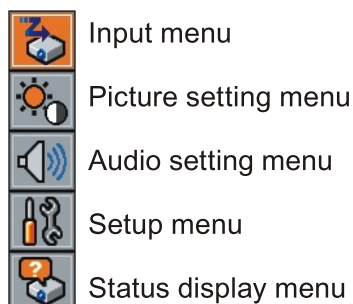
Using menus

■ How to use the menus

The menu shown below is for operation instructions purposes and might differ from the actual display.

1. Press the [MENU] button. Display the menu.
2. Select a category.

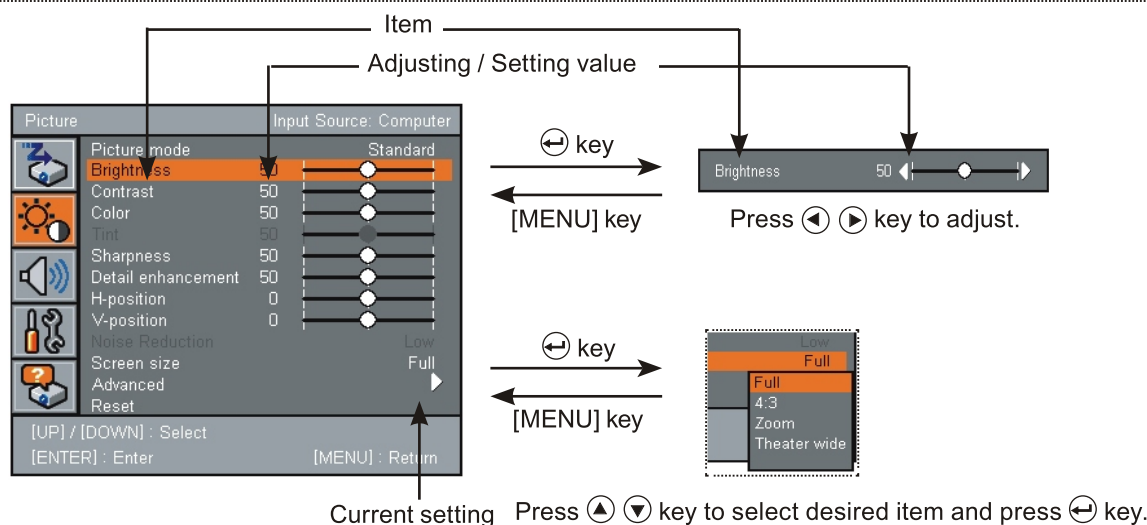
Select the category using ▲ ▼ / [UP] [DOWN] key. There are following 5 categories:



Displays the current adjustments and settings of selected category. Item shown with gray cannot be adjusted with the current input source.

3. Adjustment & Settings

Press ◀ to enter the selected category. Select item with ▲ ▼ / [UP] [DOWN] key and press ▶ again.



The figure shows displays given for operation instructions purposes. As the display may differ depending on the item, use the following pages as a reference.

4. Press the MENU button.

The category selecting menu is displayed.

5. End Press the MENU button.

(The menu disappears 30 seconds after the last operation.)

Using menus (Continued)

■ Input MENU

Video input source and audio input source can be selected separately in this projector.

Video input

Video input source can be selected in this menu from DVD, Component, HDMI, Video, S-video and Computer.

Press . Select with   / [UP] [DOWN] key.

Audio input

Audio input source can be selected in this menu from DVD, HDMI, Digital (Coax) and Analog. Audio input source links to the video input source and it is memorized.

For example, after analog is selected for audio input when video input is S-video, analog will be selected automatically for audio input whenever S-video is selected for video input.

Press . Select with   / [UP] [DOWN] key.

■ Picture setting MENU

Picture mode

Select a picture mode. The following four modes are available for each input.

- Standard
- Dynamic
- Theater 1
- Theater 2

Press . Select with   / [UP] [DOWN] key.




Brightness

Adjust the brightness of the image.

Press . Adjust with  / [-] (Darker) or  / [+] (Brighter) key.

Contrast

Adjust the image contrast.

Press . Adjust with  / [-] (Lower) or  / [+] (Higher) key

Color

Adjust the color of the image.

Press . Adjust with  / [-] (Lighter) or  / [+] (Deeper) key.

Tint

Adjust the tint of the image color.

Press . Adjust with  / [-] (Reddish) or  / [+] (Greenish) key.

This can be adjusted only when video input source is video/s-video and input signal is NTSC or NTSC4.43.

Sharpness

Adjust the sharpness of the image.

Press . Adjust with / [-] (Softer) or / [+] (Sharper) key.

Detail Enhancement

Set the function to enhance detail of the image.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

H-position

Adjust horizontal position of the image.

Press . Adjust with / [-] (Move left) or / [+] (Move right) key.

This can be adjusted when input source is Computer or HDMI.

V-position

Adjust vertical position of the image.

Press . Adjust with / [-] (Move down) or / [+] (Move up) key.

This can be adjusted when input source is Computer or HDMI.

Noise Reduction

Adjust the function to reduce screen noise.

Press . Select from Off/Low/Mid/High with / [UP] [DOWN] key.

Screen Size

Set the screen size (aspect ratio) of the projection image.

- Press . Select from Full/4:3/Zoom/Theater wide with / [UP] [DOWN] key.
- When input signal format is 1080i or 720p, actual screen size is fixed to Full without regard to the screen size setting.

Advanced

Detailed adjustment is available in Advanced MENU.

Press to go to advanced MENU.

Reset

Reset Picture setting MENU adjustments and settings to factory default.

Press . Confirmation window will appear and select [Yes] with / [-] or / [+] key and press to reset.

Advanced MENU

Overscan

Adjust overscan ratio of the image.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

No overscan when set to 100%

NTSC mode

Set the black level for video/s-video input.

Press . Select US(7.5IRE)/Japan(0IRE) with / [UP] [DOWN] key.

This can be adjusted only when video input source is video/s-video and input signal is NTSC or NTSC4.43.

HDMI mode

Set the black/white level for HDMI input.

Press . Select HDMI/DVI with / [UP] [DOWN] key.

This can be adjusted when input source is HDMI.

Frequency

Adjust the sampling frequency to eliminate periodic patterns and flickering when many vertical lines appear on the screen.

Press . Adjust with / [-] or / [+] key.

This can be adjusted when input source is Computer.

Phase

Adjust the sampling phase to eliminate flicker.

Press . Adjust with / [-] or / [+] key.

This can be adjusted when input source is Computer.

Mpeg NR

Adjust the detail of noise reduction. Mpeg noise reduction level.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Reset

Reset Advanced picture setting MENU adjustments and settings to factory default.

Press . Confirmation window will appear and select [Yes] with / [-] or / [+] key and press to reset.

■ Audio setting MENU

Volume

Adjust the volume of sound.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Bass

Adjust the bass level of sound.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Treble

Adjust the treble level of sound.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Surround

Set the surround mode of speaker output.

Press . Select from Stereo/Dolby/Concert Hall/Stadium with / [UP] [DOWN] key.

- When Dolby is selected, surround mode are changed automatically between Dolby digital and Dolby Pro Logic II in accordance with input audio signal format.
(Dolby digital is available only when input signal format is AC-3)

L/R reverse

Set L channel /R channel speaker output reversed.

When this projector is used in ceiling mount or rear projection, it is recommended to speaker output reversed.

Press . Select On/Off with / [UP] [DOWN] key.

Center

Adjust the center speaker output level.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Digital Audio Delay

This projector uses high quality video processing system and it takes some frames period to process. Digital audio delay can adjust the audio delay for audio-video synchronization.

Press . Adjust with / [-] (Shorter) or / [+] (Longer) key.

Sub-Woofer

Adjust the sub-woofer output level.

Press . Adjust with / [-] (Lower) or / [+] (Higher) key.

Reset

Reset Audio setting MENU adjustments and settings to factory default.

Press . Confirmation window will appear and select [Yes] with / [-] or / [+] key and press to reset.

■ Setup MENU

Language

Select a language used in menu system. The following ten languages are available.

- English
- French (Français)
- Germany (Deutsch)
- Italian (Italiano)
- Spanish (Español)
- Portuguese (Português)
- Japanese (日本語)
- Simplified Chinese (简体中文)
- Traditional Chinese (繁體中文)
- Korean (한국어)

Press . Select with   / [UP] [DOWN] key.

H-Keystone

Correct the horizontal keystone distortion of the screen.

Press . Adjust with  / [-] (Shrinking leftward) or  / [+] (Shrinking rightward) key

V-Keystone

Correct the vertical keystone distortion of the screen.

Press . Adjust with  / [-] (Shrinking downward) or  / [+] (Shrinking upward) key





■ Notes

- Depending on the amount of keystone adjustment and the content of images, some information may be lost, or the picture quality may suffer.
- Keystone adjustment will not change the shape of the menus (OSD) and the background (with no signal input).

Lamp Time Reset

Reset the lamp timer to zero.

This should only be done after the lamp has been replaced.

Press . Confirmation window will appear and select [Yes] with  / [-] or  / [+] key and press  to reset.

Lamp Power

Set the lamp power.

When lamp power is set to high, the screen becomes brighter, but the fan noise become a little increased.

Press . Select from Standard/High with   / [UP] [DOWN] key.

Fan mode

Set the cooling fan speed.

Setting fan mode to high increases the cooling fan speed. Set this option to use the projector at high altitude (over 1800 meter / 6000 feet above sea level)

Press . Select from Standard/High with / [UP] [DOWN] key.

Projection mode

Sets projection mode in accordance with placement style.

The following four modes are available.

- Standard
- Ceiling (TDP-ET10 only)
- Rear
- Rear ceiling (TDP-ET10 only)

Press . Select with / [UP] [DOWN] key.

Keypad Light

Set keypad light on or off.

Press . Select from On/Off with / [UP] [DOWN] key.

Reset

Reset Setup MENU adjustments and settings to factory default.

Press . Confirmation window will appear and select [Yes] with / [-] or / [+] key and press to reset.

Reset All

Resets all adjustments and settings except language to factory default.

Press . Confirmation window will appear and select [Yes] with / [-] or / [+] key and press to reset.

■ Status display MENU

Video format

Display video signal format of current input signal.

H Frequency

Display Horizontal sync frequency of current input signal.

V Frequency

Display Vertical sync frequency of current input signal.

Audio format

Display audio signal format of current input signal.

Lamp Time

Display time of lamp use.

Displays lamp time as a measure of when the lamp should be replaced. (Cannot be used as a counter of guaranteed lamp time) When displayed time approached approximate 2,000 - 3,000 hours, consult with a store about getting a TLPLET10 replacement lamp (sold separately) prepared.

■ Notes

- If a lamp is used for extended periods, images will appear dark, and the lamp could burn out. This is characteristic of a lamp, and is not malfunction. (The lifetime may vary much due to conditions of use.)

Total Time

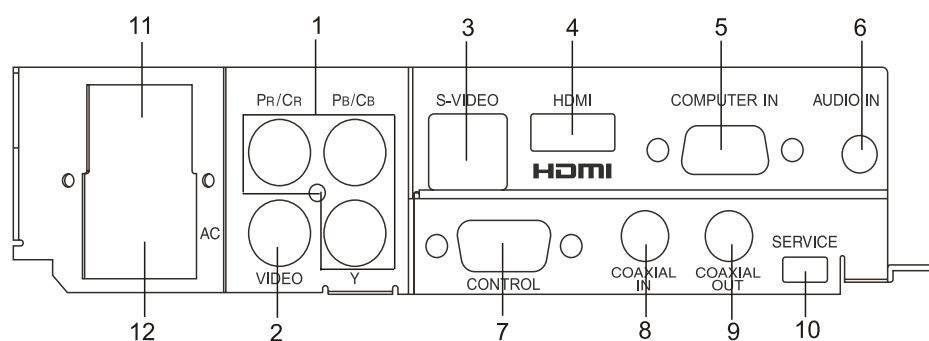
Display the total time that this projector is used.

Version

Display firmware version.

This shows the version of the projector's internal control program. This version is referred to for customer service, etc.

Parts on the Rear Panel



Name	Function
(1) YP _B PR/YC _B CR (Component)	: Input component video signal from video equipment.
(2) VIDEO terminal	: Input video signal from video equipment.
(3) S-Video terminal	: Input S-Video signals from video equipment.
(4) HDMI terminal	: Input HDMI (Digital Audio/Video) signal from video equipment.
(5) COMPUTER IN terminal	: Input RGB signal from a computer.
(6) AUDIO IN terminal	: Inputs audio signals from equipment with audio output.
(7) CONTROL serial terminal	: When operating the projector via a computer, connect this to the controlling computer's serial port.
(8) COAXIAL (Digital Audio) In terminal	: Inputs digital audio source with coaxial output.
(9) COAXIAL (Digital Audio) Out terminal	: Outputs digital audio signal to external audio system with coaxial input.
(10) Service terminal	: For service purpose only.
(11) Main power switch	: Switch power on/off
(12) AC In socket	: Plug in AC Power

■ Note

Although this service manual abbreviates component video signals as YP_BPR, the product also supports signals from video equipment marked "YC_BCR."

List of Supported Signals

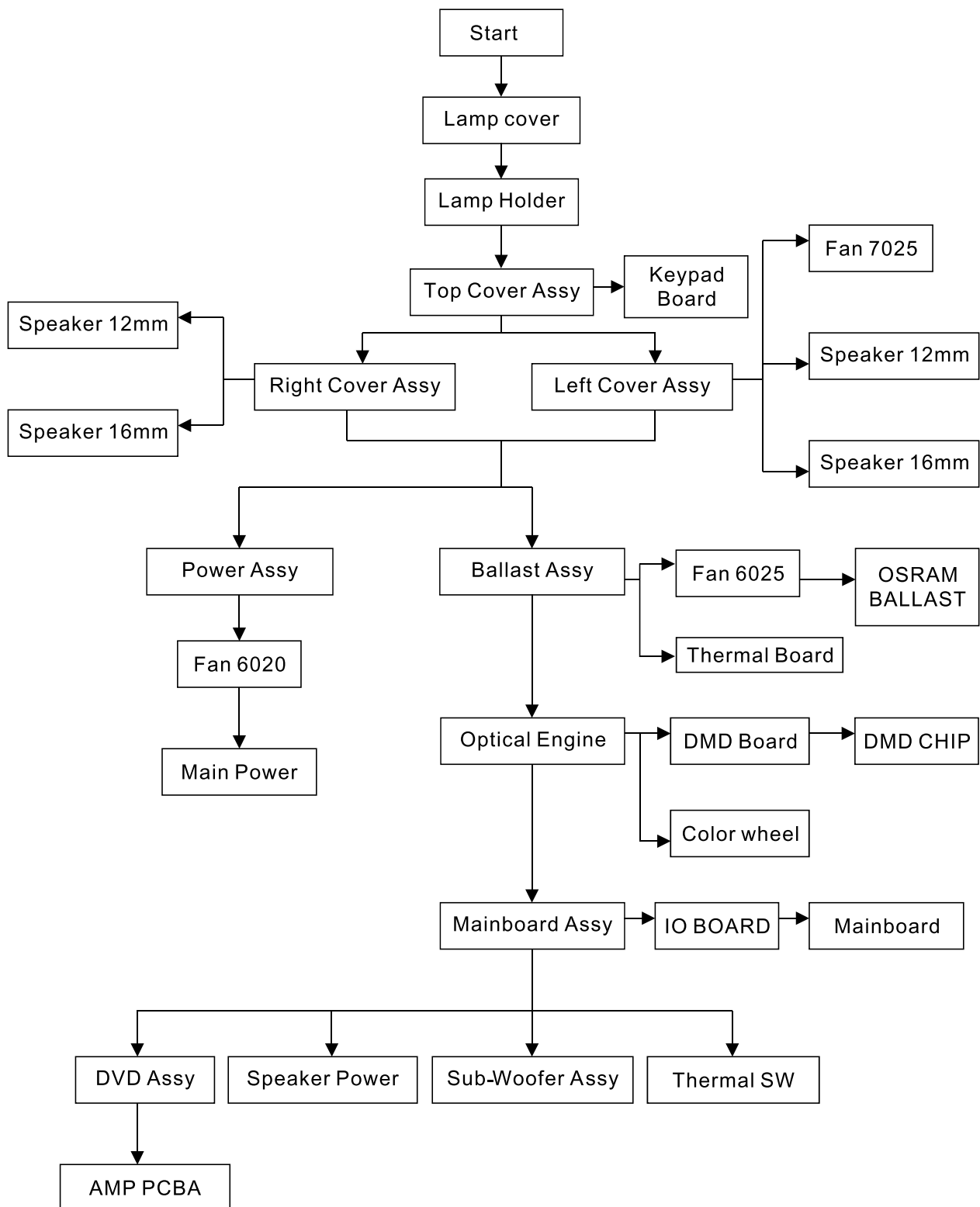
■ List of supported signals (Y/Pb/Pr signals)

Signal format	fh (kHz)	fv (Hz)
480i(525i)@60Hz	15.73	59.94
480p(525p)@60Hz	31.47	59.94
576i(625i)@50Hz	15.63	50.00
576p(625p)@50Hz	31.25	50.00
720p(750p)@60Hz	45.00	60.00
720p(750p)@50Hz	37.50	50.00
1080i(1125i)@60Hz	33.75	60.00
1080i(1125i)@50Hz	28.13	50.00

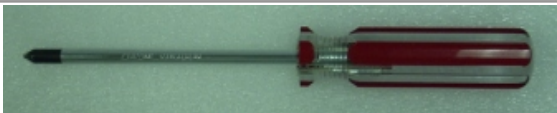

■ List of supported signals (Video, S-Video signals)

Video mode	fh (kHz)	fv (Hz)	fsc (MHz)
NTSC	15.73	60	3.58
PAL	15.63	50	4.43
SECAM	15.63	50	4.25 or 4.41
PAL-M	15.73	60	3.58
PAL-N	15.63	50	3.58
PAL-60	15.73	60	4.43
NTSC4.43	15.73	60	4.43

Replaceable Part Structure







Required Tools

Item	Photo
Drive bit (+) No.2	
Torque drive bit (+) No.2	

Parts Replacement


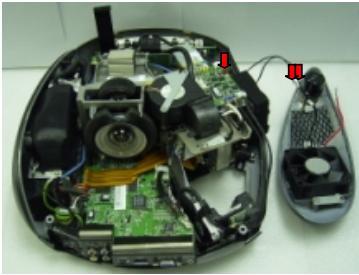

■ Lamp

No.	Figure	Explanation
1		Remove two lamp cover screws.
2		Remove three lamp screws.
3	 	Lamp is pulled out.

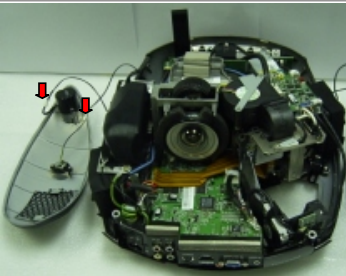
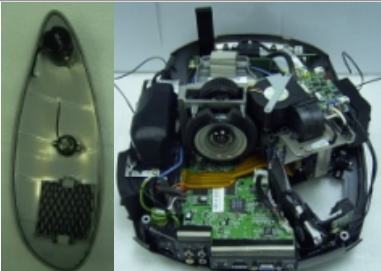
■ Top Cover

No.	Figure	Explanation
1		Remove the backhandle-cover.
2		Remove the I/O cover.
3		Remove four screws at the bottom.
4		Open top cover and remove the keypad wire.
5		Top cover is removed.

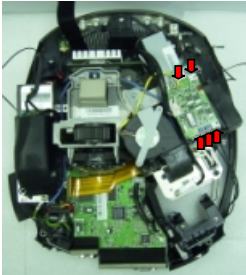
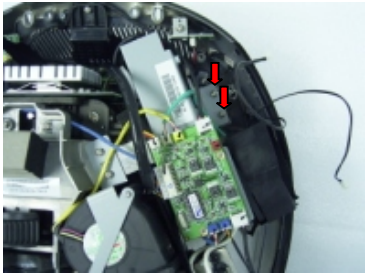
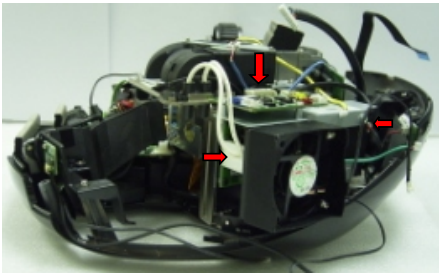
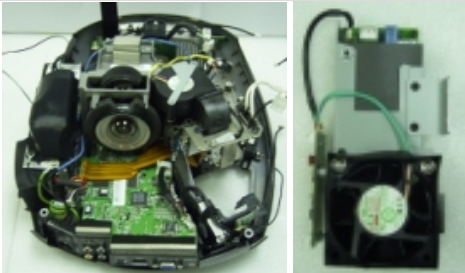
■ Left Side Cover

No.	Figure	Explanation
1		Remove two wires from the cable clamp.
2		Disconnect two speaker wires and fan7025 wire.
3		Left side cover is removed.


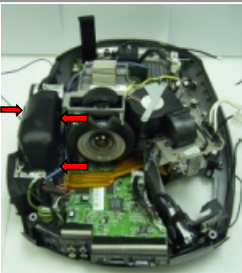

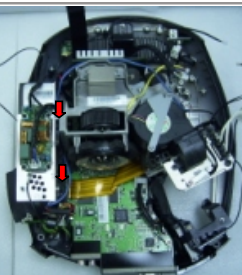
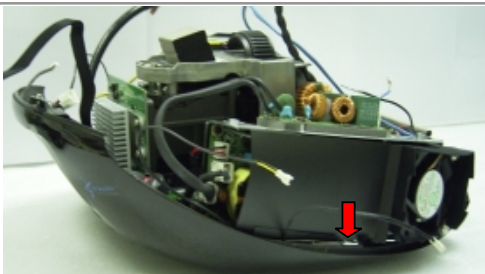
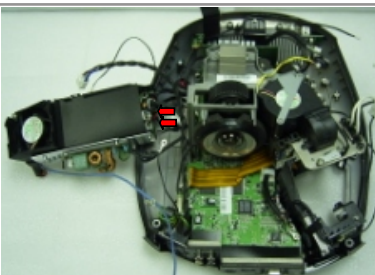

■ Right Side Cover

No.	Figure	Explanation
1		Disconnect two speaker wires.
2		Right side cover is removed.

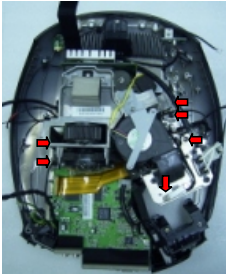
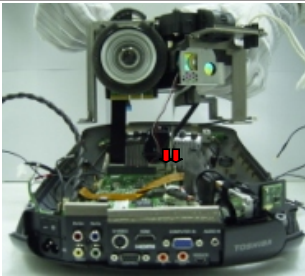
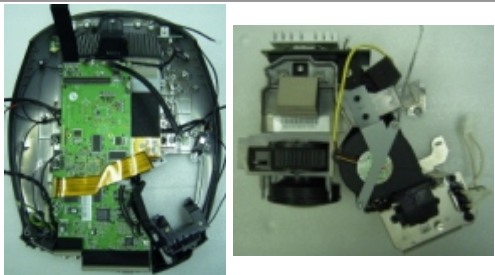
■ Ballast

No.	Figure	Explanation
1		Disconnect five wires on the thermal board.
2		Remove two screws.
3		Disconnect three wires on the ballast.
4		Ballast is removed.

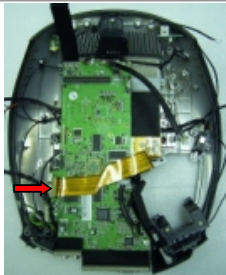
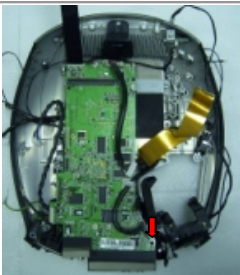
■ Power Supply

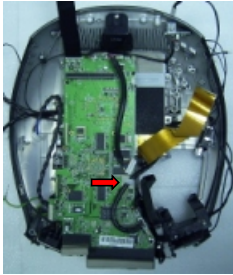
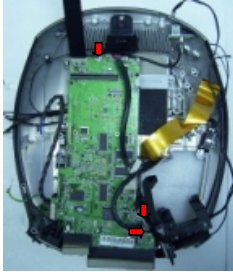
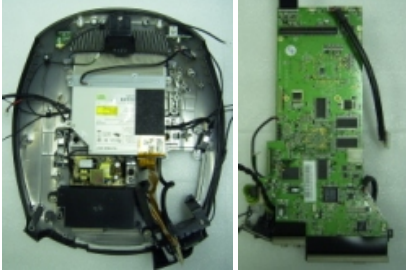
No.	Figure	Explanation
1		Remove two screws on the power.
2		Remove air duct.
3		Disconnect the wire on the power and the wire on the main board.
4		Remove two screws.
5		Remove one screw.
6		Disconnect two wires on the power.
		Power is removed.

■ Optical Engine

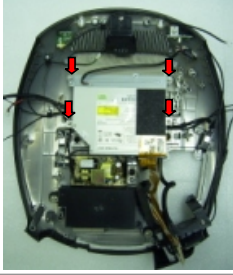
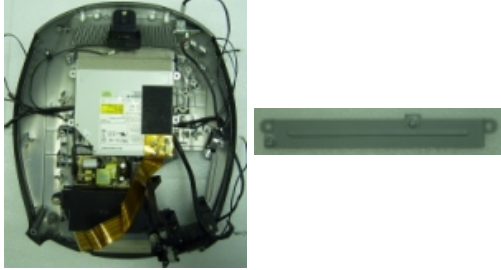

No.	Figure	Explanation
1		Remove six screws.
2		Lift optical engine and disconnect two wires on the main board.
3		Optical engine is removed.

■ Main Board

No.	Figure	Explanation
1		Disconnect DVD wire.
2		Remove one screw on the main board.

3		Remove the audio board wire from the cable clamp.
4		Disconnect three wires on the main board.
5		Main board is removed.

■ DVD Module

No.	Figure	Explanation
1		Remove four screws.
2		Remove the main board brace.
3		DVD module is removed.

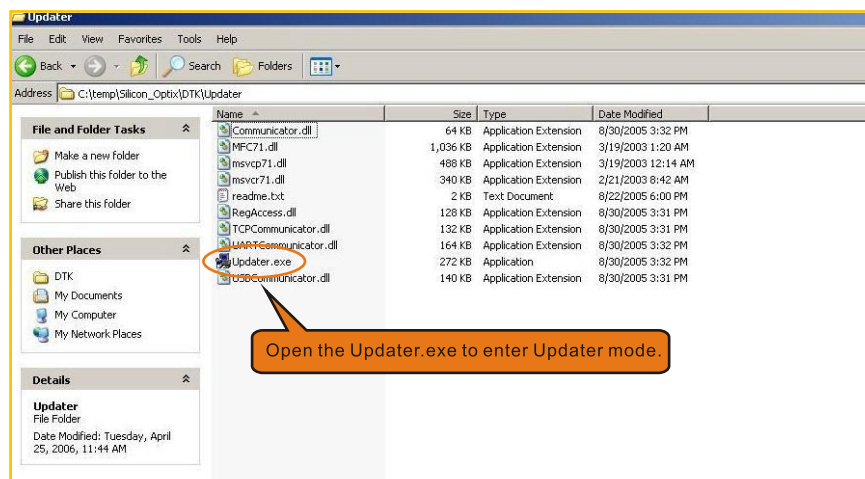
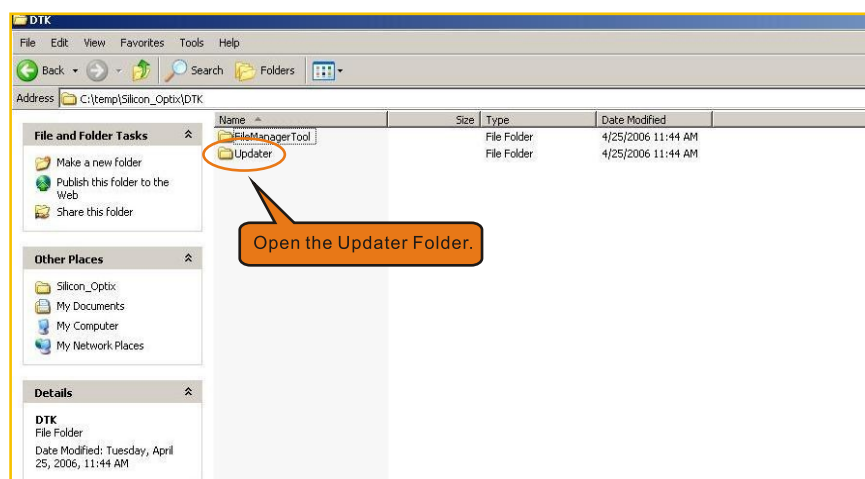
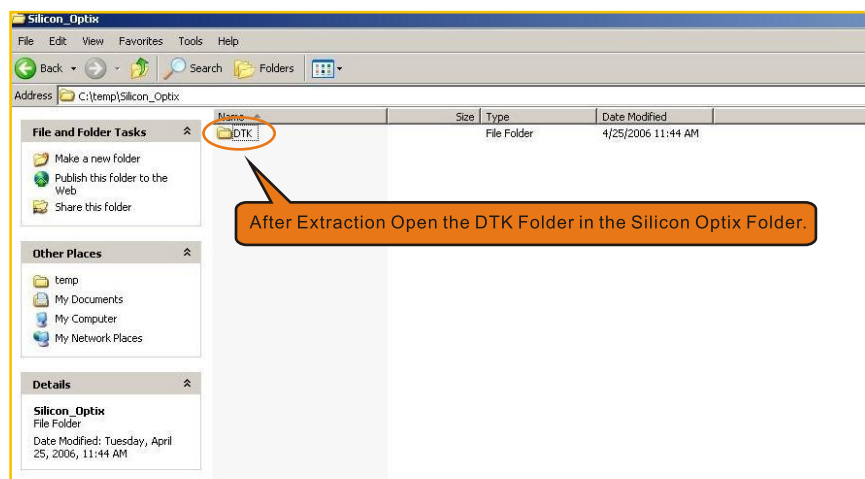
Firmware Upgrade

■ Updater Tool Standard Operational Procedure

Inserting Windows Driver

- Place the following files from the Updater folder
- \Updater\Windows
- Place USBComm.sys
- C:\WINDOWS\system32\drivers
- Place USBComm.inf
- C:\WINDOWS\inf
- *inf folder may be hidden, you need to unhide the inf folder

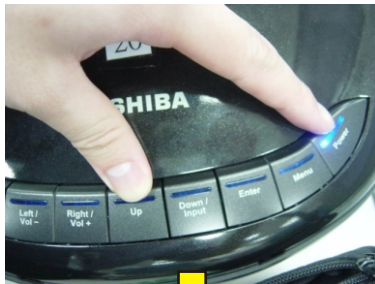
■ Open Updater



■ Get ET-20 into Updater Mode



Plug the Mini USB Into the Socket.



Press the Power Key button while holding down the Up Key.



Turn the ET-20 Power On.

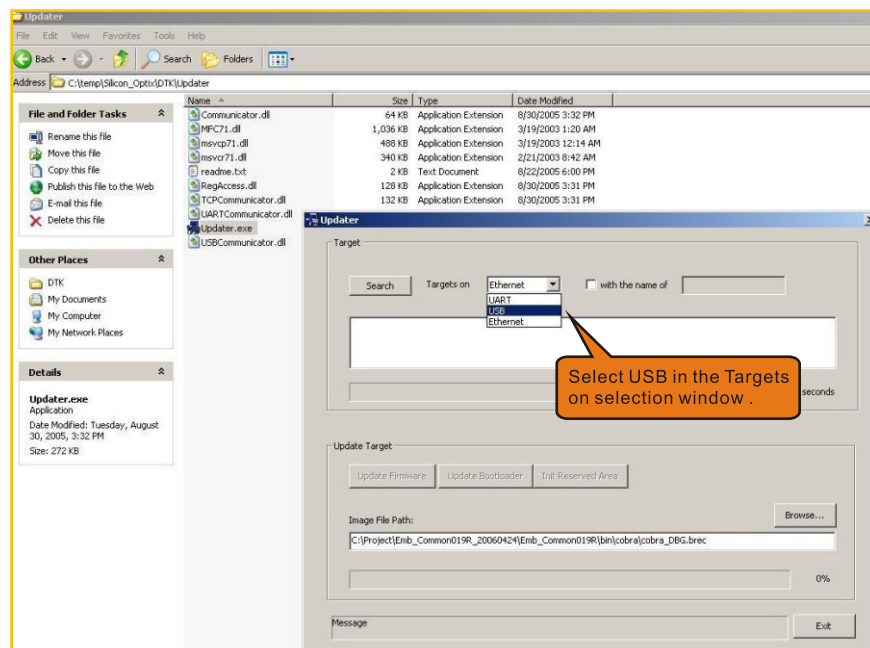
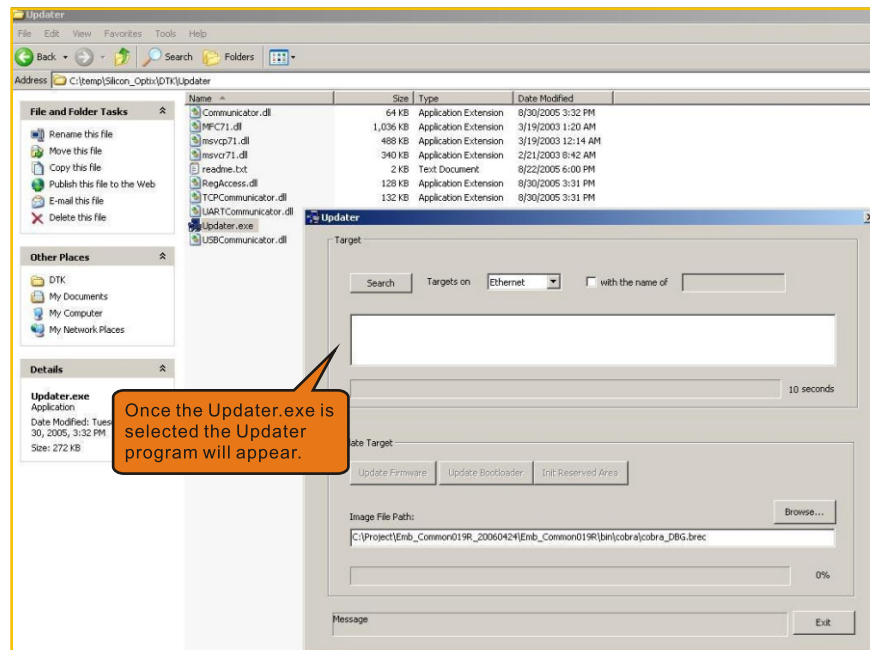


Continue Holding the Power Key and Up key for 5 seconds.

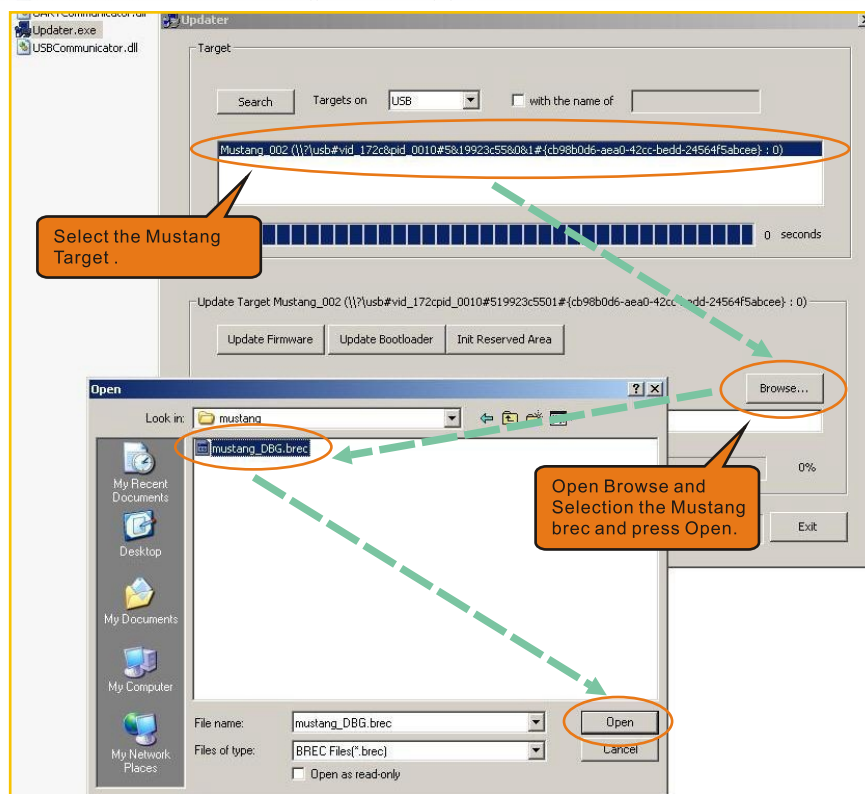
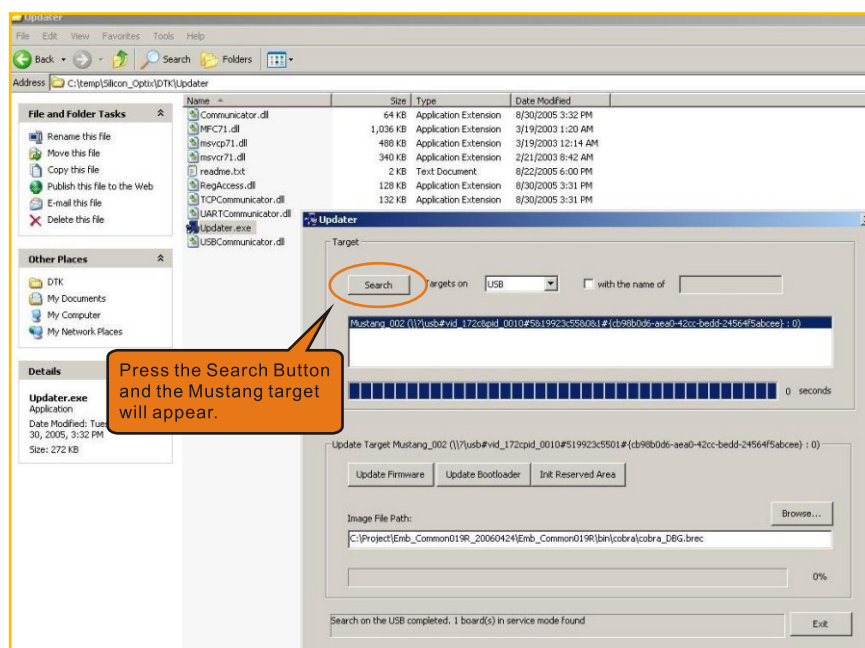


When the fan is running and the power LED is on, the ET-20 is in update mode.

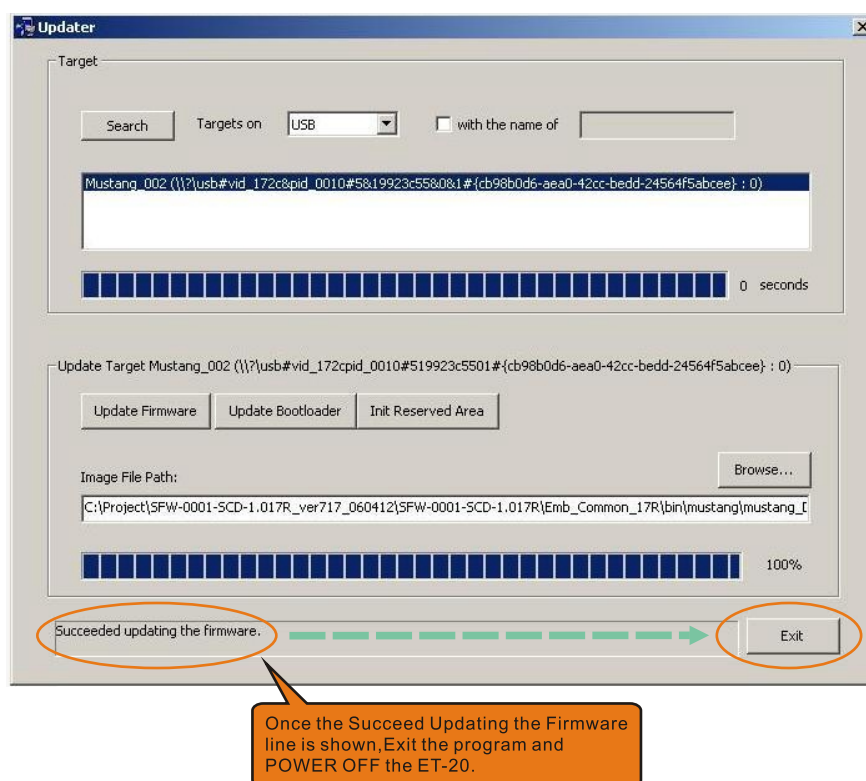
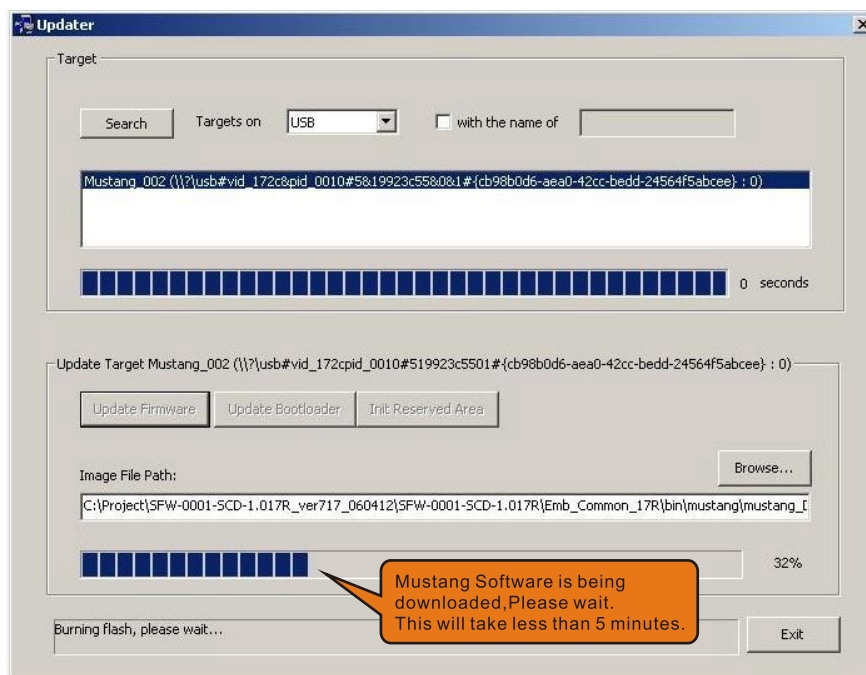
■ Using the Updater



■ Search and selecting Firmware



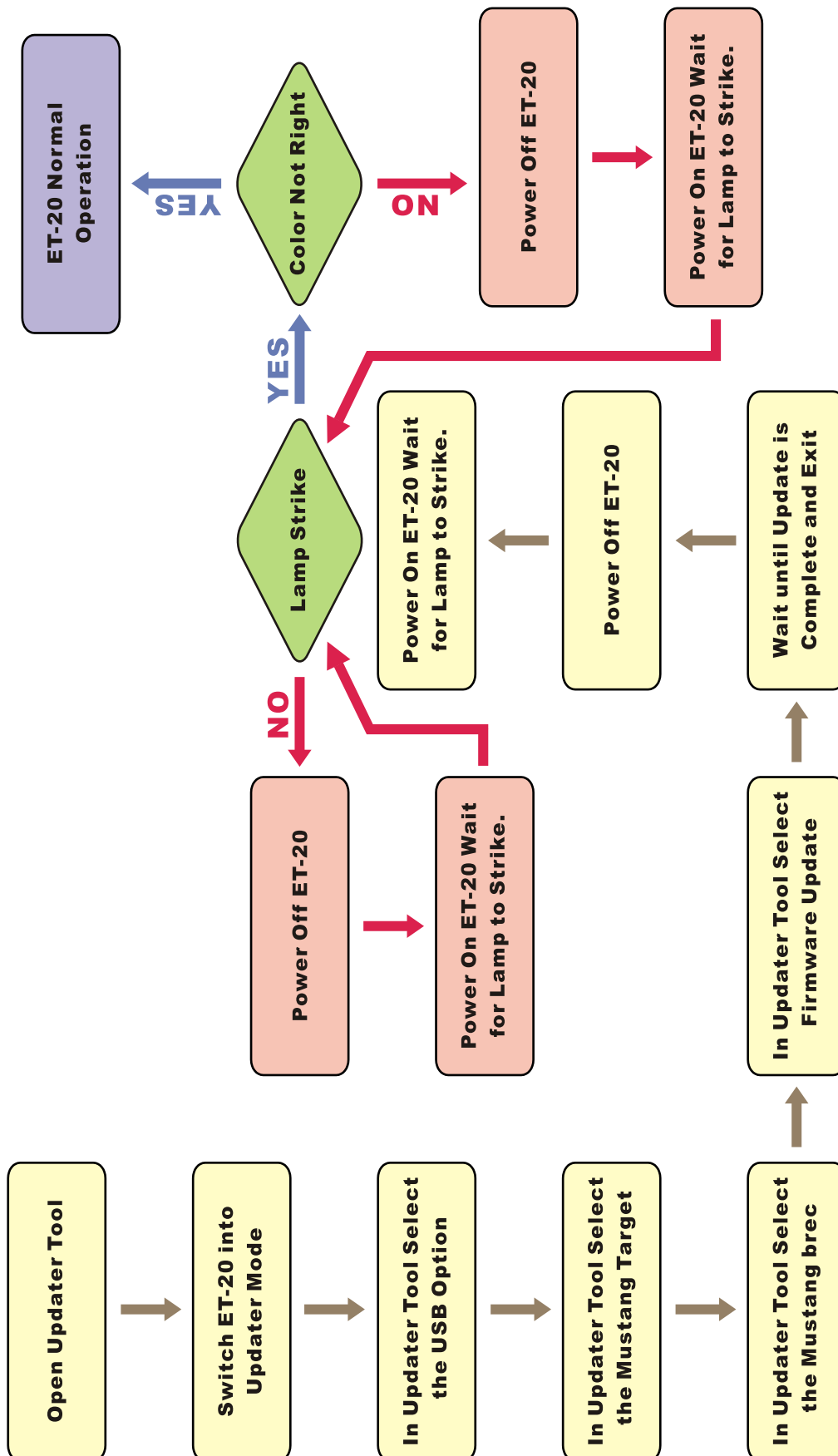
■ Uploading Firmware



■ Note

After Downloading the Software, a Hard Power off is Required on the ET-20.
After the First power on of the ET-20 you must wait for the software to write to flash.

■ Download Flow Chart



■ Services only menu

TDP-ET10, TDP-ET20 Service Menu

Service Menu

>Enter
Menu
<Menu
Up/Down
to select

- **CW Index:** Color Wheel Index Adjustment
0 to 320
- **Internal Pattern:** Eight built in Internal Patterns for Burn-ins and color testing
- **White Peaking:** Used for White peaking adjustment on the DDP1000
Function is thus far disabled and should not be used
- **Start ADC Calibration:** Used for the Calibration of the ADC
A VGA signal of XGA needs to be implemented
VGA Calibration pattern is required for proper calibration of the ADC
- **Speaker Test:** Used for Internal Speaker test
0 to 6
- **Power Off Status:** Status Indicator for Power Off status

1: keypad off	8: Fan Error shutoff	64: lamp by itself
2: remote control off	16: Fan extended	128: Auto Shutoff by timer
4: RS-232 off	32: thermal	
- **Ballast Error:** Indication of Ballast Error from data sheet, If a ballast occurs it will remember for the next power off

0x00: no Error	0x05: Lamp Extinguished	0x0B: Configuration Error
0x01: Temperature too high	0x07: EEPROM write error	0x0C: Lamp voltage too low
0x02: Lamp voltage too low	0x08: EEPROM buffer overflow	0x0D: Wrong kernel version
0x03: Lamp voltage too high	0x09: UART buffer overflow	
0x04: Lamp does not ignite	0x0A: Current value zero	
- **Ballast Status:** Indicate the status of the Ballast
Refer to **Diagram 1**
- **Ballast Voltage:** Shows the Ballast Voltage in actual voltage
example 60 = 60Volts and 120 = 120 Volts
- **Ballast Temperature:** Indicates the temperature of the Ballast, conversion is needed as described in Orsam's Data sheet"
Refer to **Diagram 2**
- **Auto Shutoff:** Used to burn-in Projector.
The selection of the numbers is in hours
Therefore a selection of 4 will burn in the projector for 4 hours and it will cycle thru - internal patterns
- **Advanced Factory Menu:**
 - **Lamp Sync Type:** Adjustment of Lamp sync type
 - **DMD BIN Type:** Selection of DMD Bin Type
 - **ADC Red Gain:** Adjustment of ADC Gain
 - **ADC Green Gain:** Adjustment of ADC Gain
 - **ADC Blue Gain:** Adjustment of ADC Gain
 - **ADC Red Offset:** Adjustment of ADC Offset
 - **ADC Green Offset:** Adjustment of ADC Offset
 - **ADC Blue Offset:** Adjustment of ADC Offset
 - **HDMI Field Swap:** Changes the HDMI field
 - **HQV On/Off:** Turns HQV on and off
*If turned off SxT2 image processing function will not function, therefore the input source will be pathed thru after scaling.

>Enter
<Menu

Status Byte

Command Byte: 22H

Lampdriver Response: 22H xxH

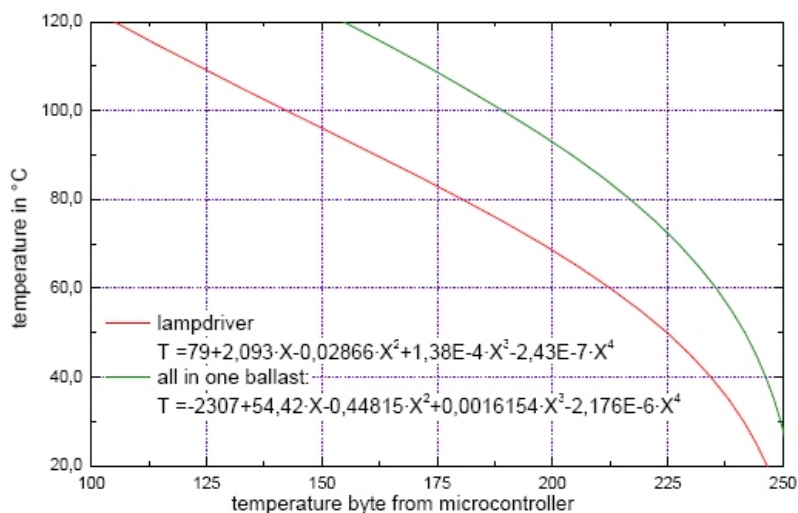
The value of the Parameter byte describes the actual status of the lampdriver. The meaning of the bits is described in the table:

Bit	Explanation
0	Step down converter has been stopped
1	Operation error has occurred (e.g. too high temperature)
2	Vcc (control board supply voltage) too low
3	Shutdown temperature reached
4	External synchronization detected
5	Run up cycle of lamp (during flag is set, internal frequency is used)
6	Maximum time for ignition (4 s) has exceeded
7	Lamp burning detected (lamp lit)

Examples for lampdriver status bytes :

Lampdriver condition	Binary value	Note
Lamp is burning	1110 0000	without ext. sync
Lamp is switched off by command	0000 0001	without ext. sync
Lamp has ignited (max. ignition time has not exceeded)	1000 0000	without ext. sync
Lamp has ignited (max. ignition time has exceeded)	1101 0000	with ext. sync
Lamp has not ignited (max. ignition time has not exceeded)	0000 0000	without ext. sync
Lamp has not ignited (max. ignition time has exceeded)	0101 0010	with ext. sync
Lamp voltage too high	0111 0010	with ext. sync
External synchronization detected, lamp lit	1111 0000	with ext. sync
Shutdown temperature exceeded	0111 1010	with ext. sync

Diagram 1



To calculate the actual temperature in °C you have to insert the response byte (xxH) in the wild card character X.

Diagram 2

■ Entering Service Procedure

Opening Service window



Step Three: Press Menu Button

Step Two: Press Down Button

Step One: Press Up button

- Repeat again if the Projector does not Enter service Menu
- Once the Service is Opened, the "Up" button will allow you to enter the service menu directly
- The hotkeys apply to Remote Control also

LED Display

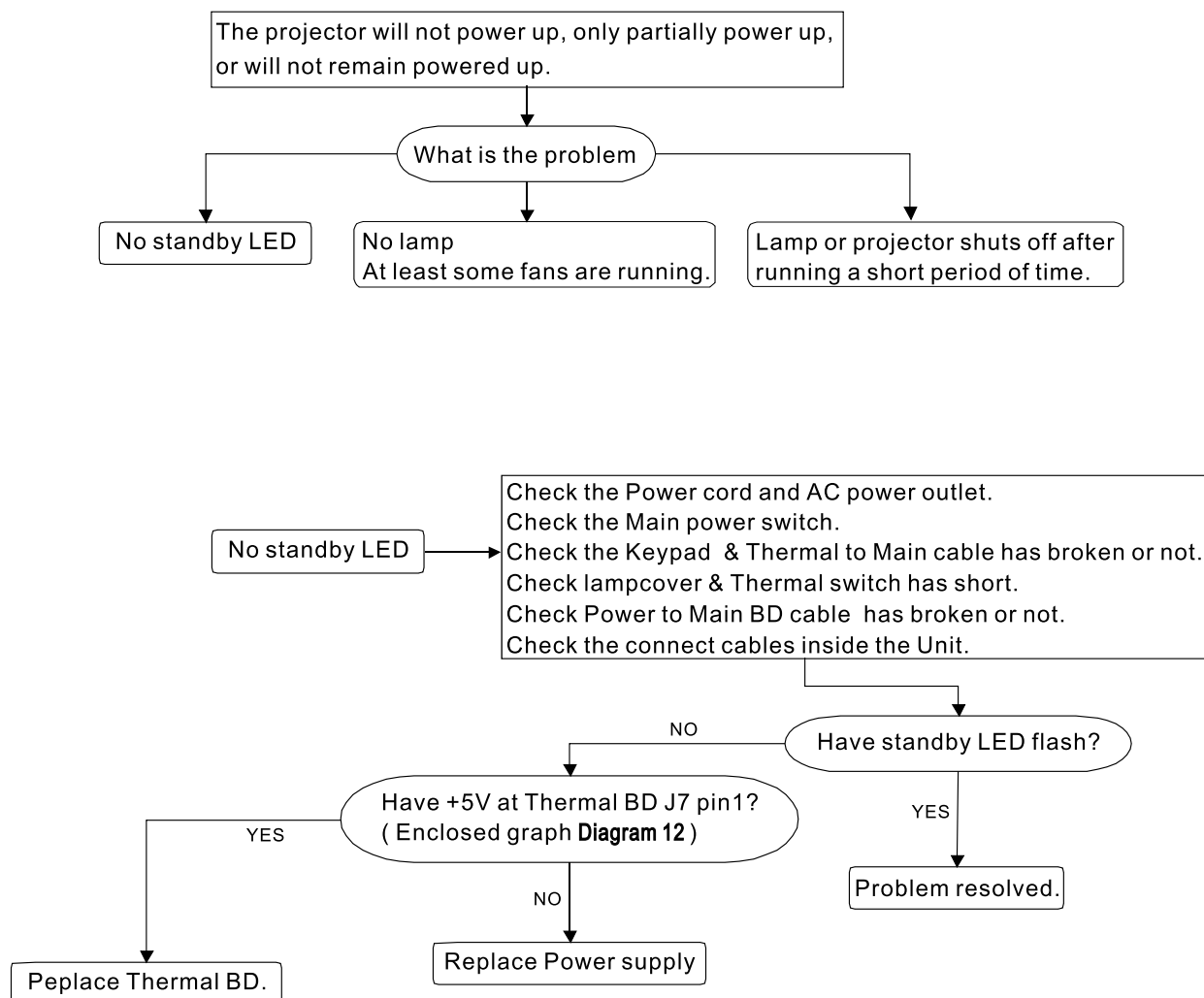
■ Trouble indications

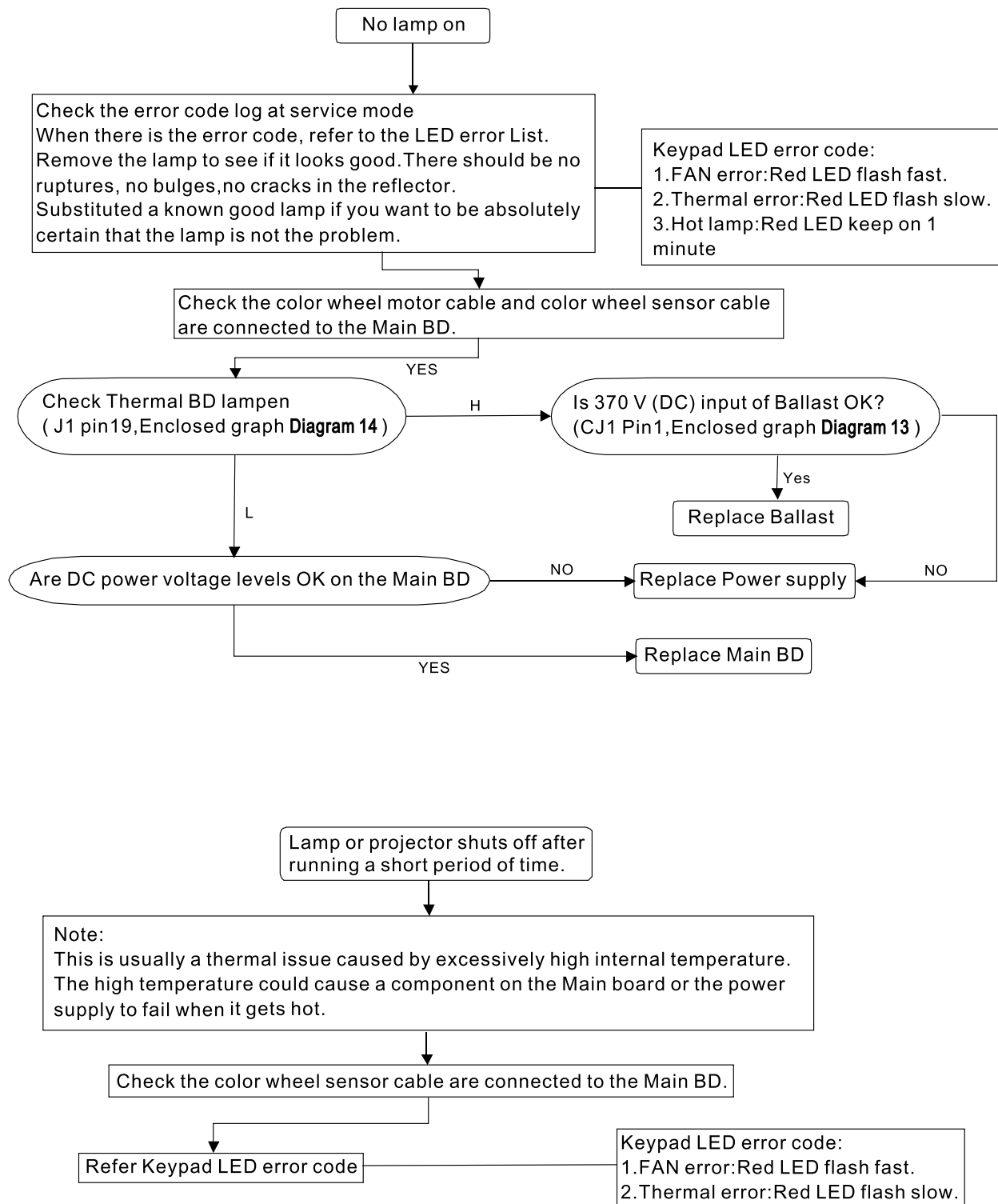
The indicator lights inform you of internal abnormalities.

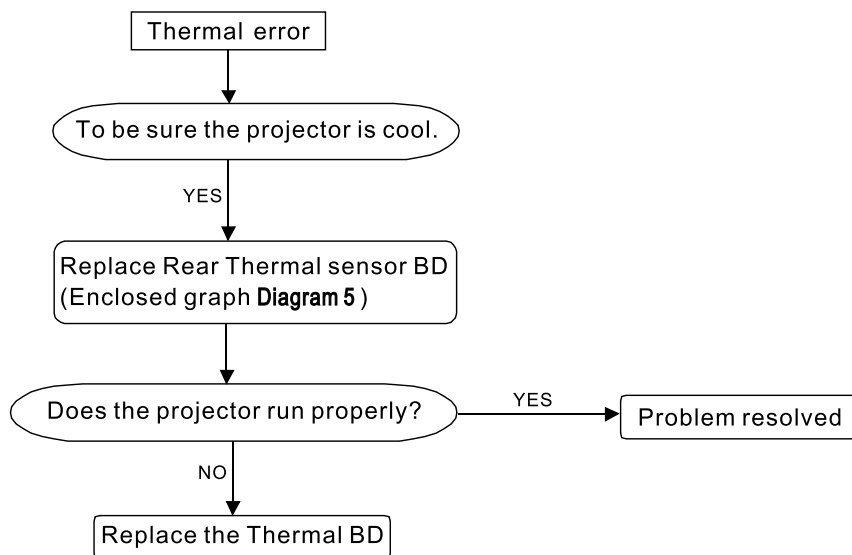
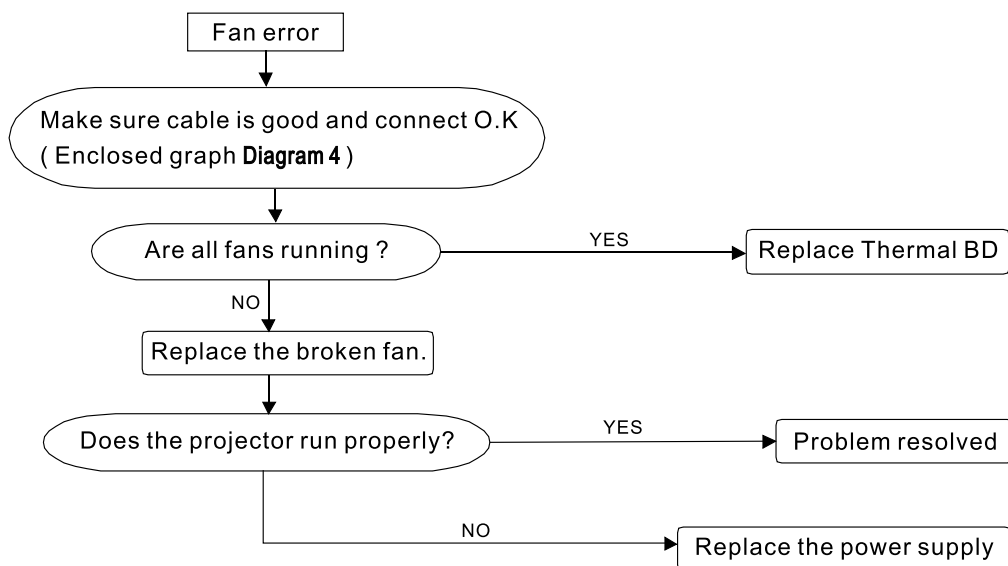
LED indicators	State/Problems
No LED lit	No power <ul style="list-style-type: none"> ⇒ Problem with projector <ul style="list-style-type: none"> • Unplug the power cord, and contact your dealer. ⇒ The lamp cover is not properly attached. <ul style="list-style-type: none"> • Unplug the power cord, and reattach the lamp cover.
Red LED is flashing at ON/ STANDBY indicator (2Hz)	Power went out during use <ul style="list-style-type: none"> ⇒ Internal overheating, or the outside temperature is too high. <ul style="list-style-type: none"> • Place the projector so that the air intake and exhaust are not blocked. • Unplug the power cord and wait for a short while, then turn the power back on. <ul style="list-style-type: none"> * The icon will appear before the power goes out. * After approx. one minute of abnormal display, the projector returns to the standby state waiting for internal cool down.
Red LED is flashing at ON/ STANDBY indicator (5Hz)	Power went out during use <ul style="list-style-type: none"> ⇒ Problem with internal cooling fan. <ul style="list-style-type: none"> • Unplug the power cord, and contact your dealer. <ul style="list-style-type: none"> * The icon will appear before the power goes out. * After approx. one minute of abnormal display, the projector returns to the standby state waiting for internal cool down.
Red LED lit at ON/STAND- BY indicator	Power went out during use, or won't come on <ul style="list-style-type: none"> ⇒ Lamp temperature is high so that it is difficult to turn on, the lifetime of the lamp has ended or the projector is malfunctioning. <ul style="list-style-type: none"> • Unplug the power cord and wait for a short while, then turn the power back on. • If a lamp burns out, replace it with a new one. <ul style="list-style-type: none"> * After approx. one minute of abnormal display, the projector returns to the standby state waiting for internal cool down.

Troubleshooting

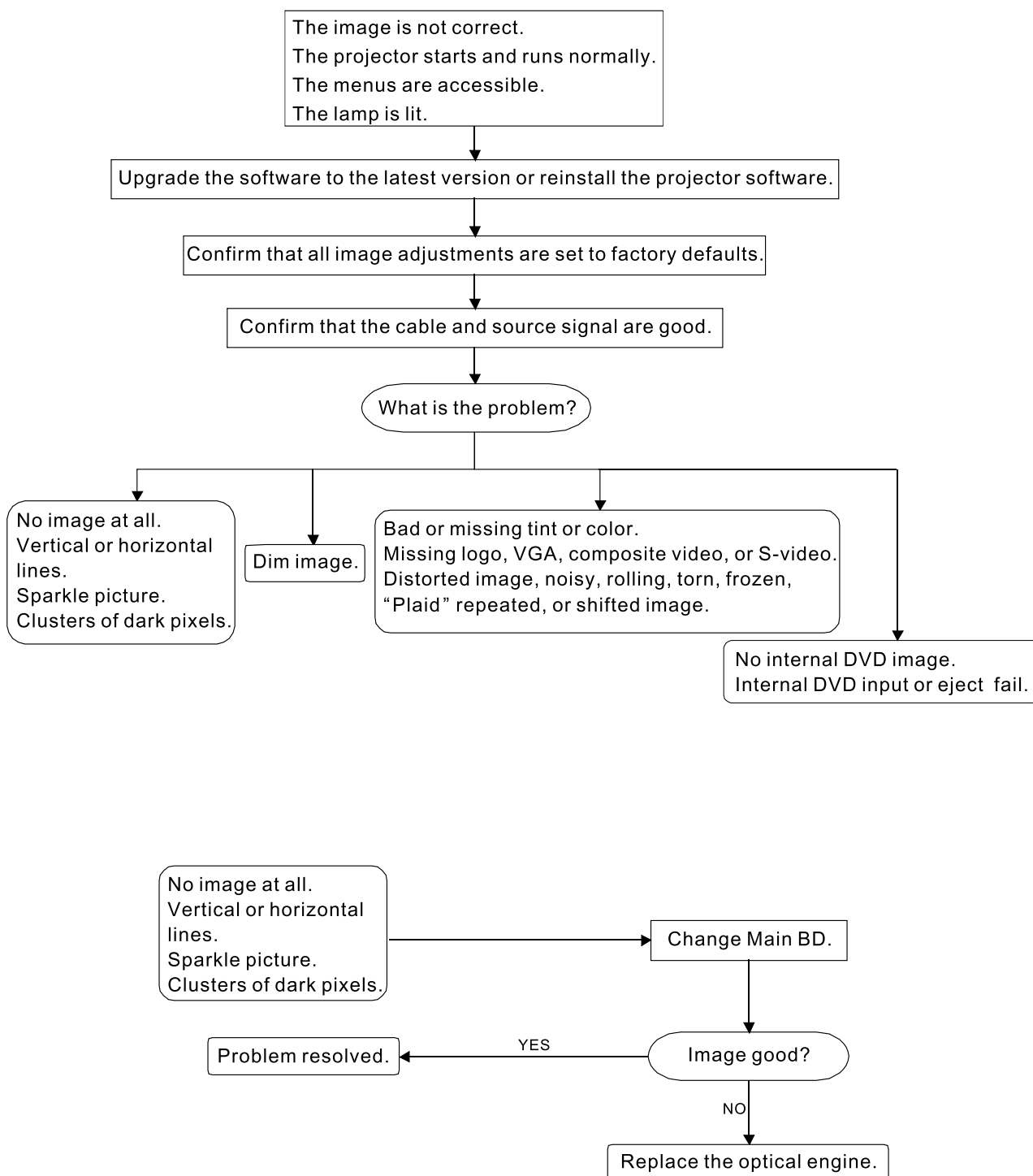
■ Troubleshooting Power Problems

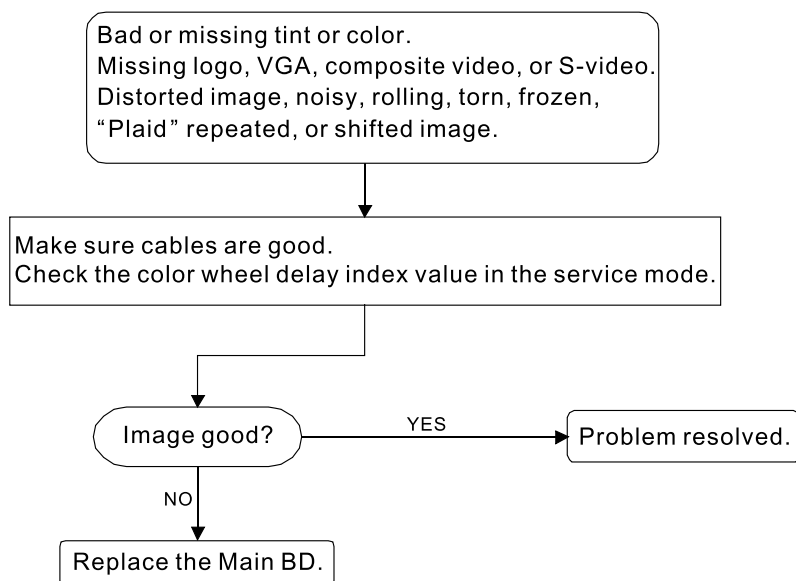
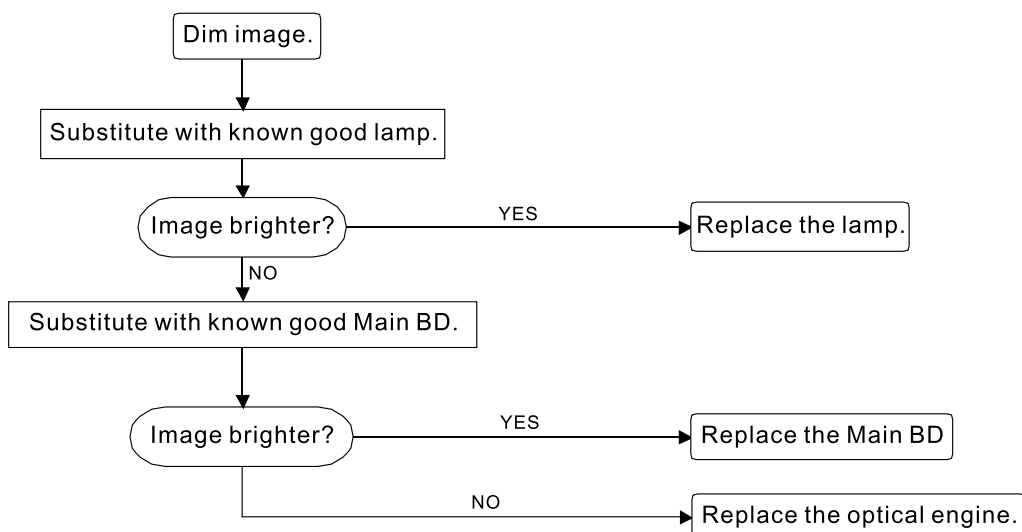


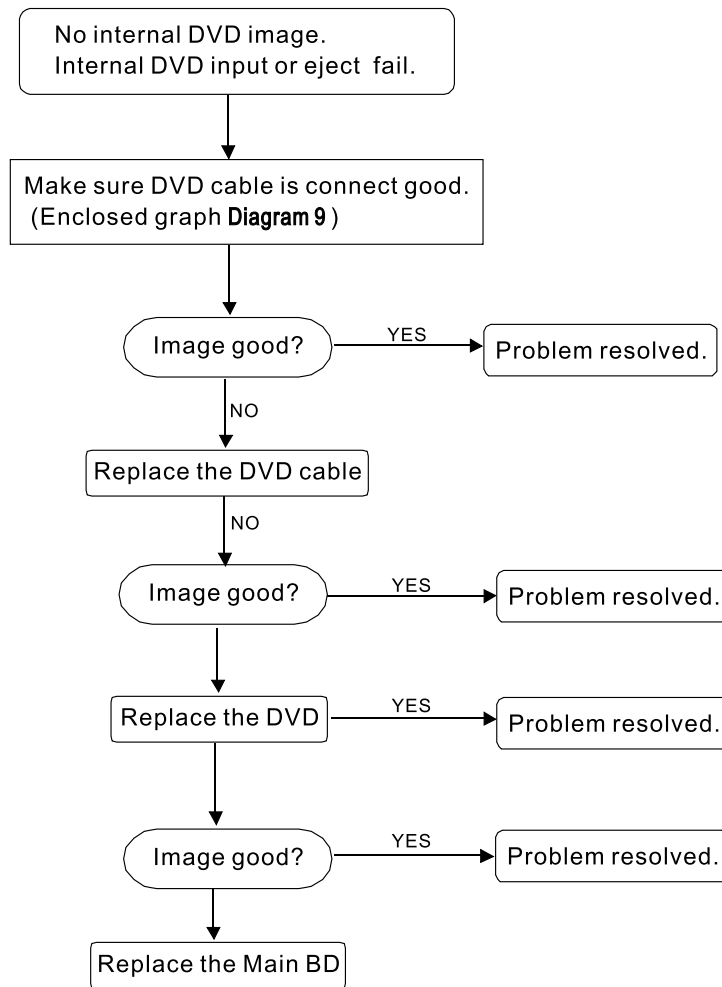




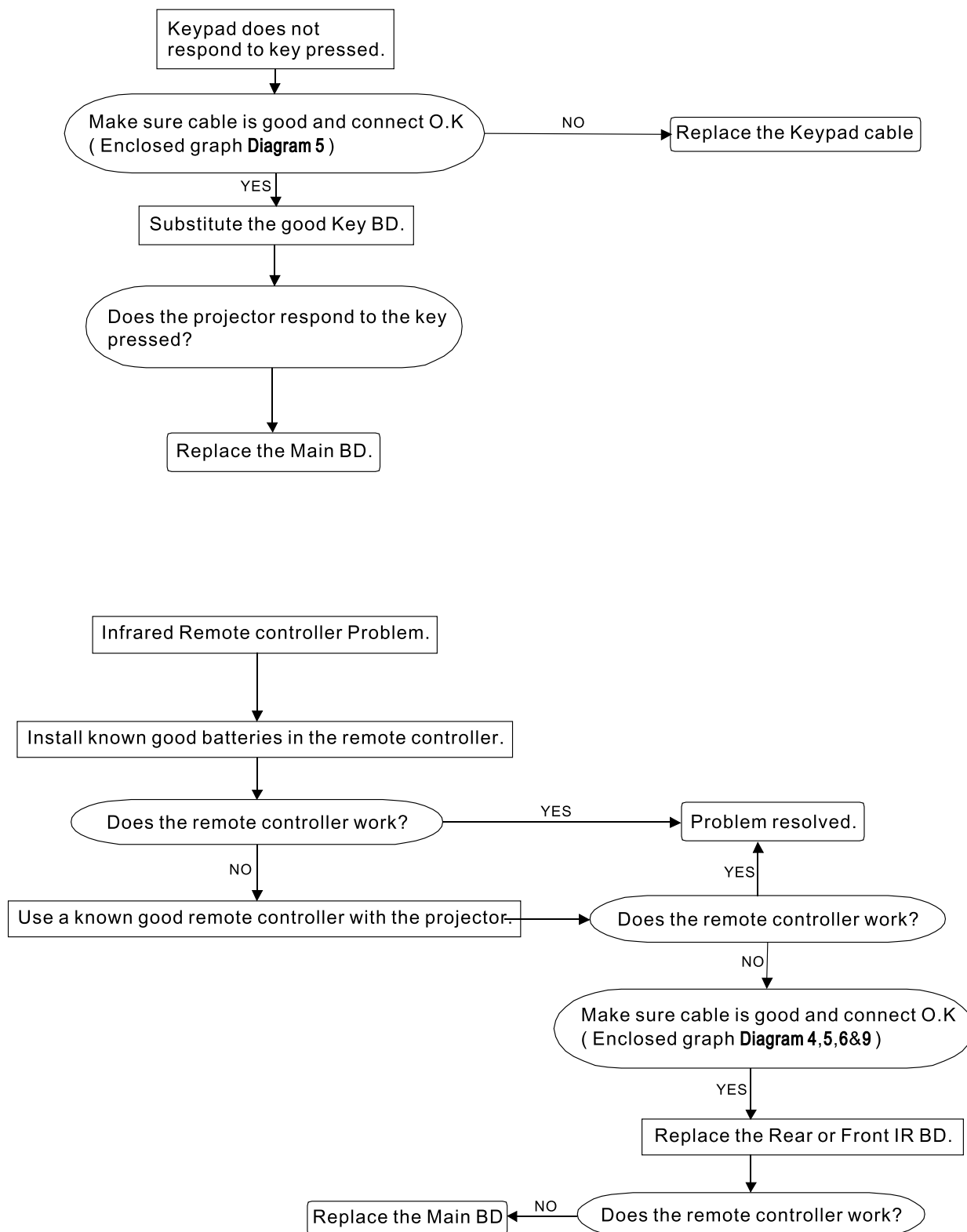
■ Troubleshooting Image Problems



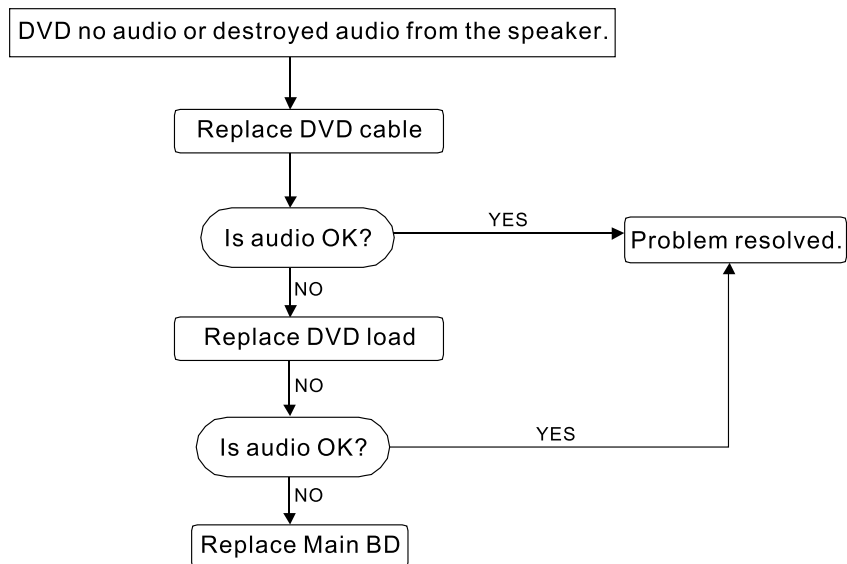
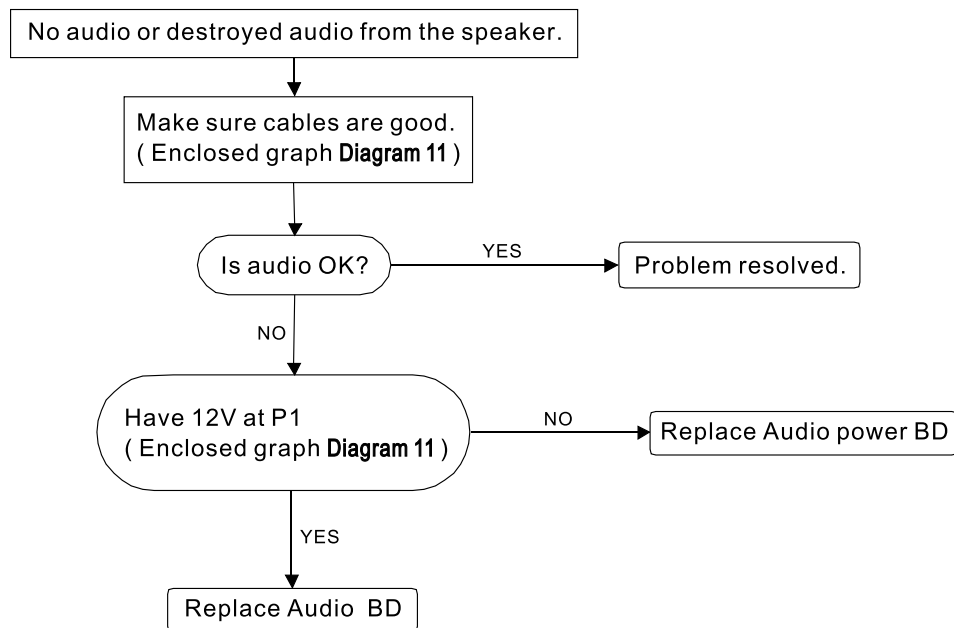


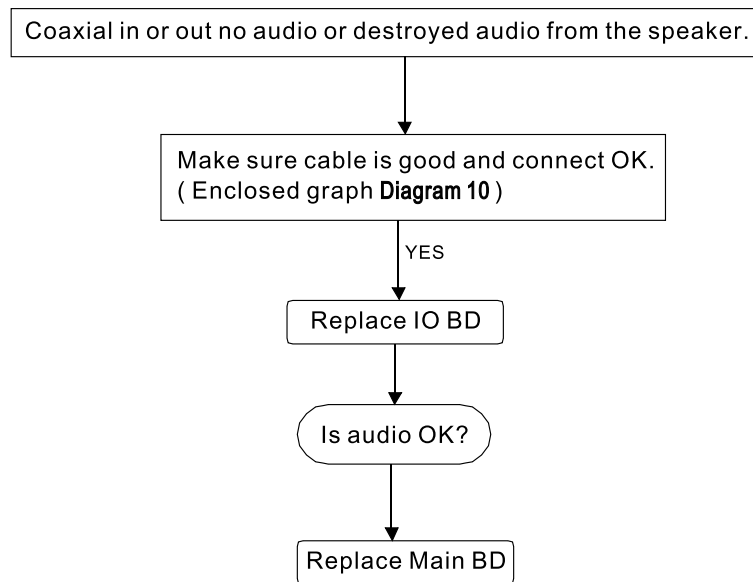
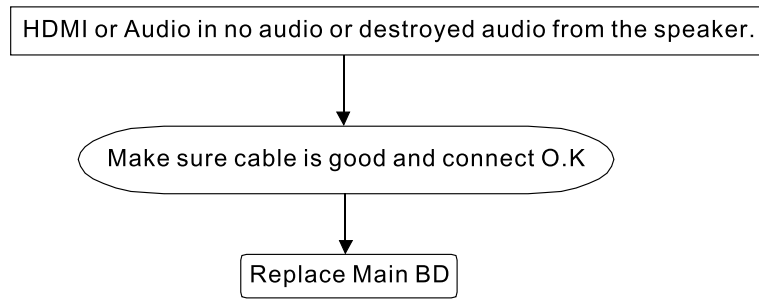


■ Troubleshooting Remote & Key



■ Troubleshooting Audio Problems





■ Enclosed Graph

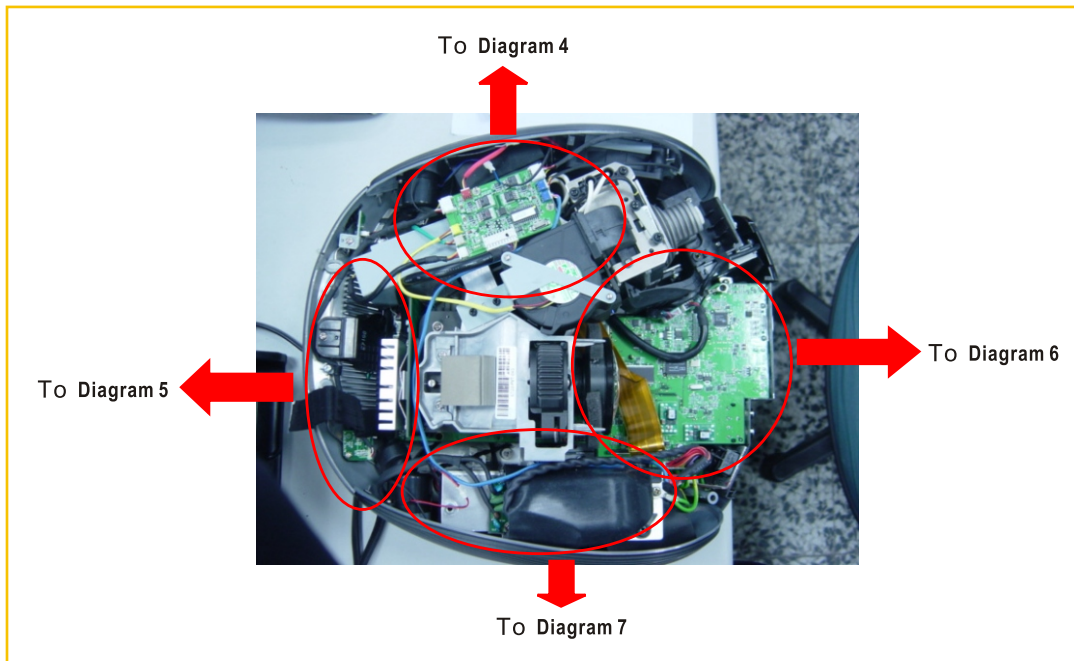


Diagram 3

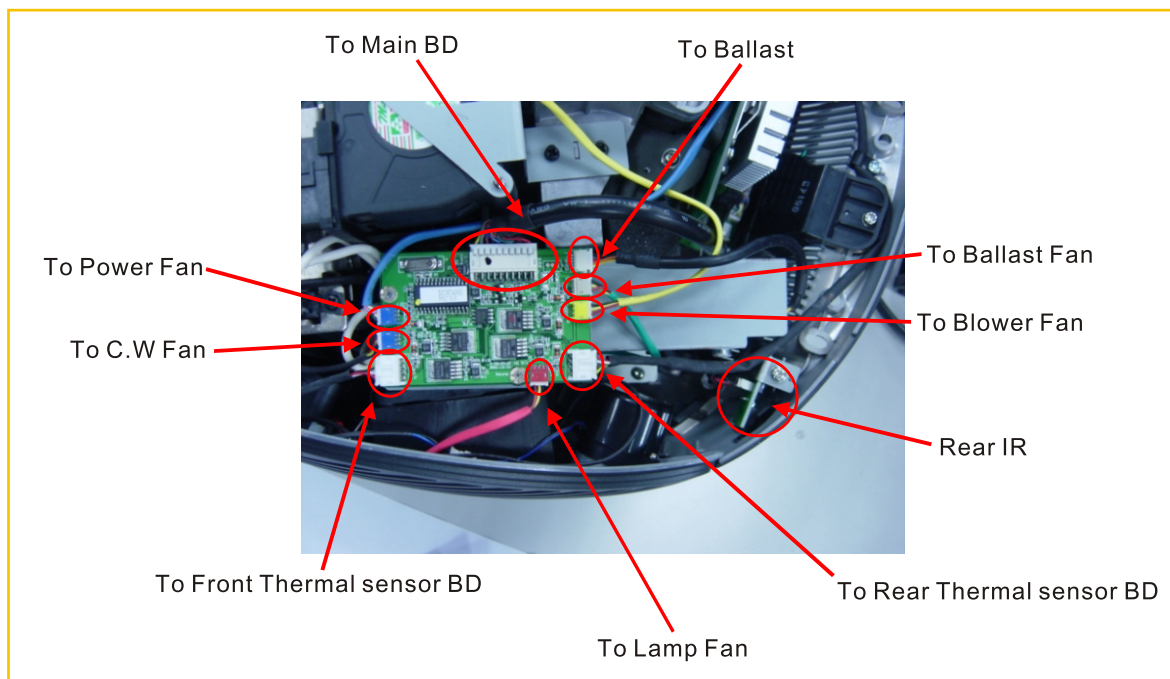


Diagram 4

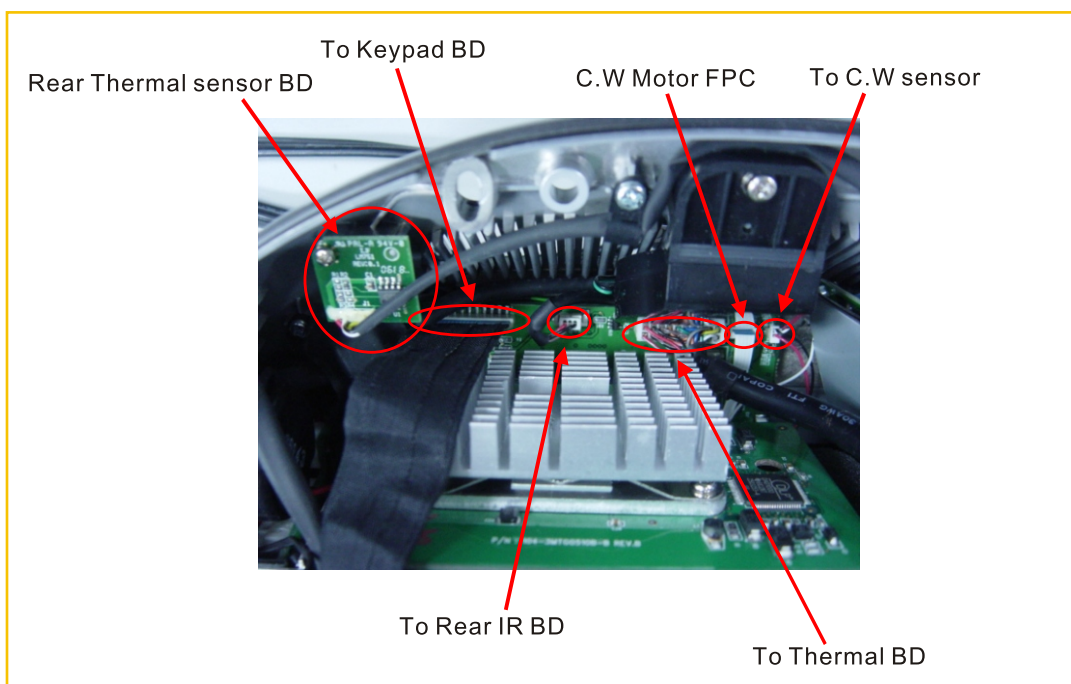


Diagram 5

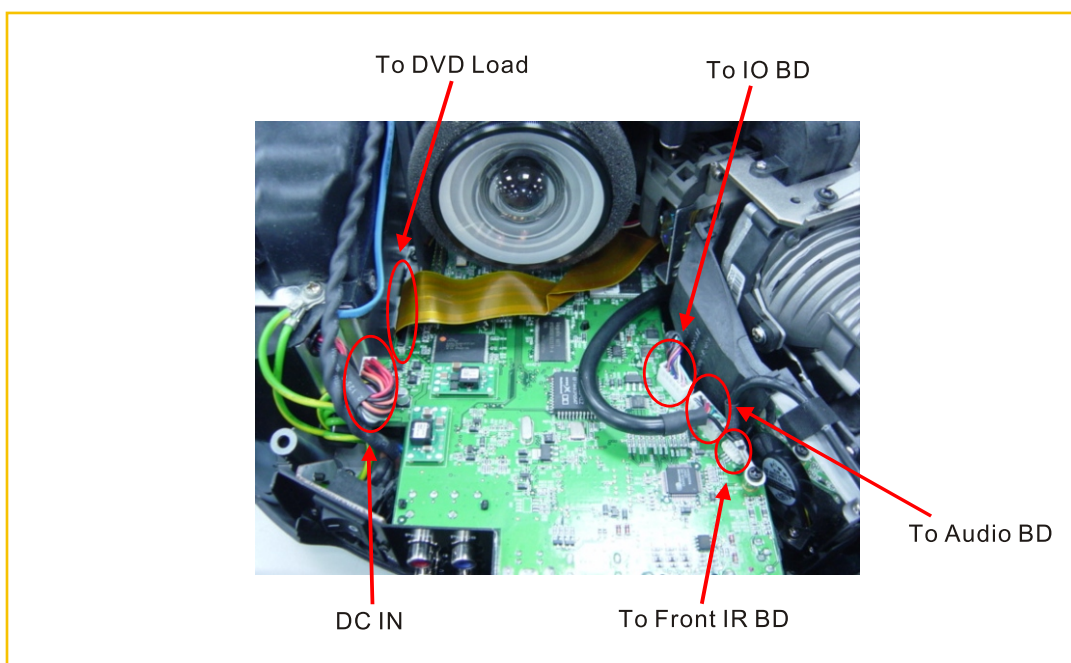


Diagram 6

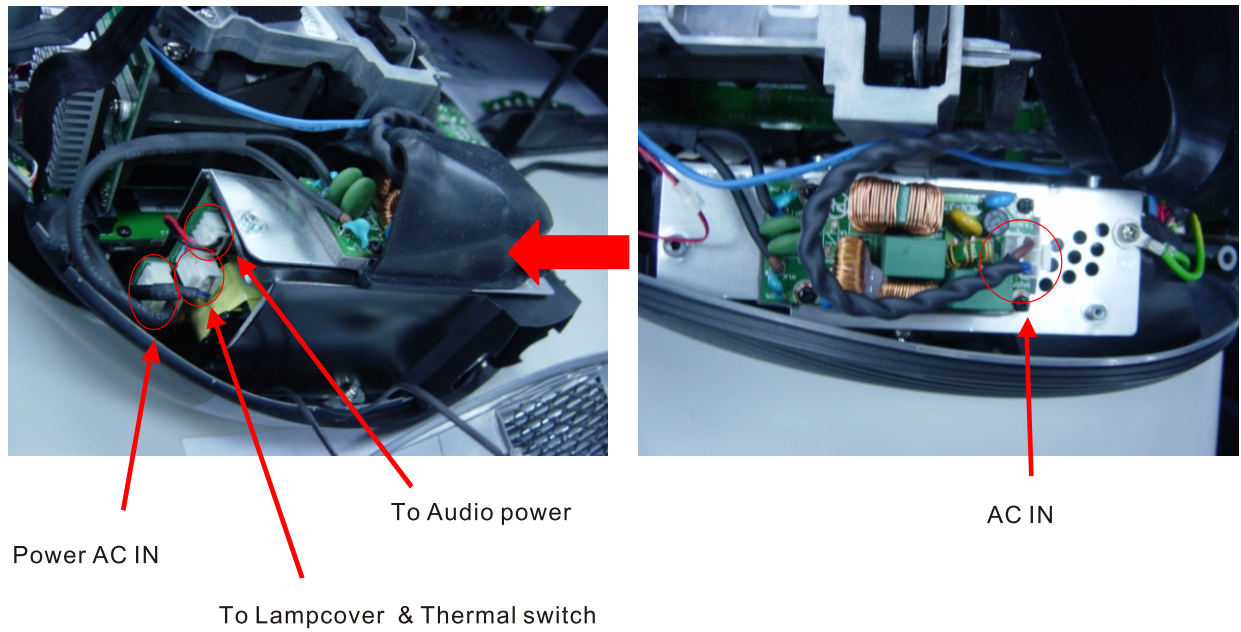


Diagram 7

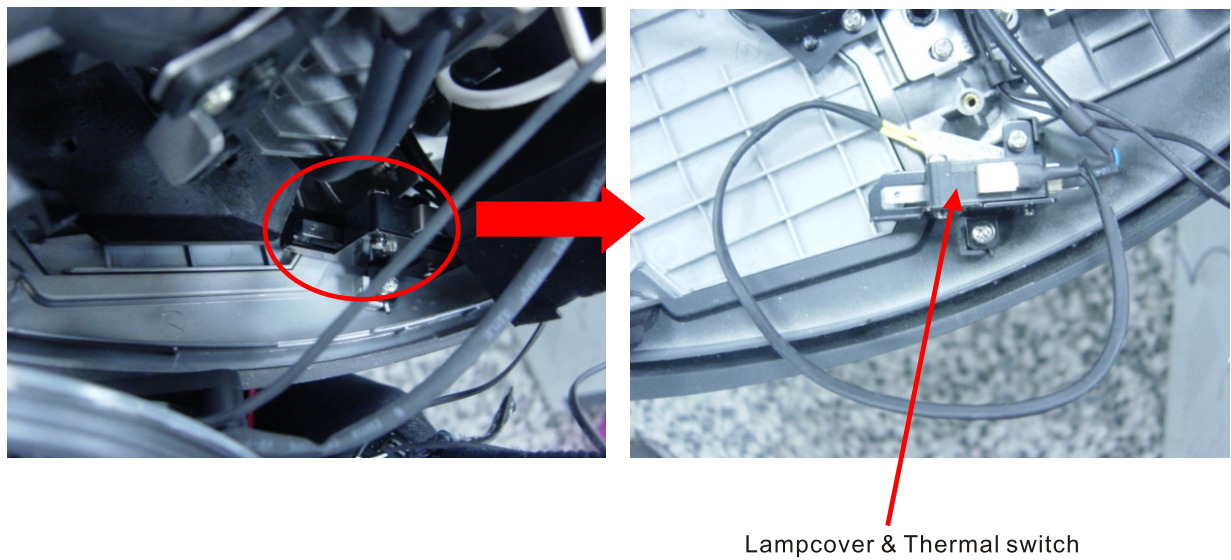


Diagram 8

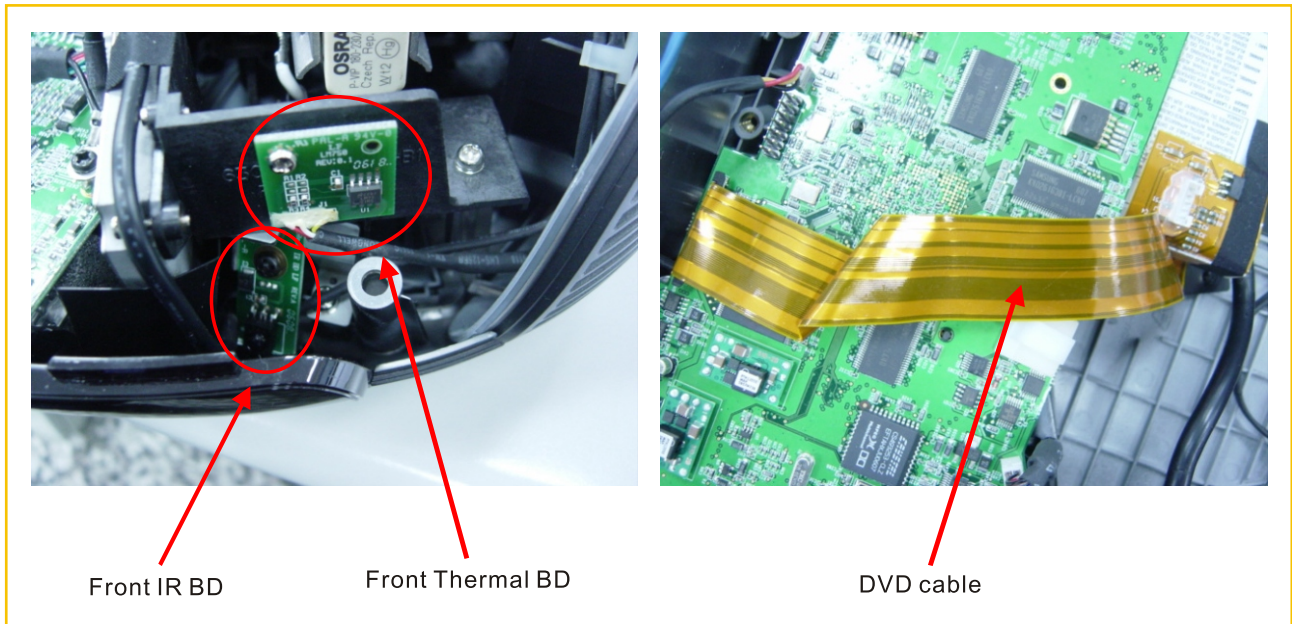


Diagram 9

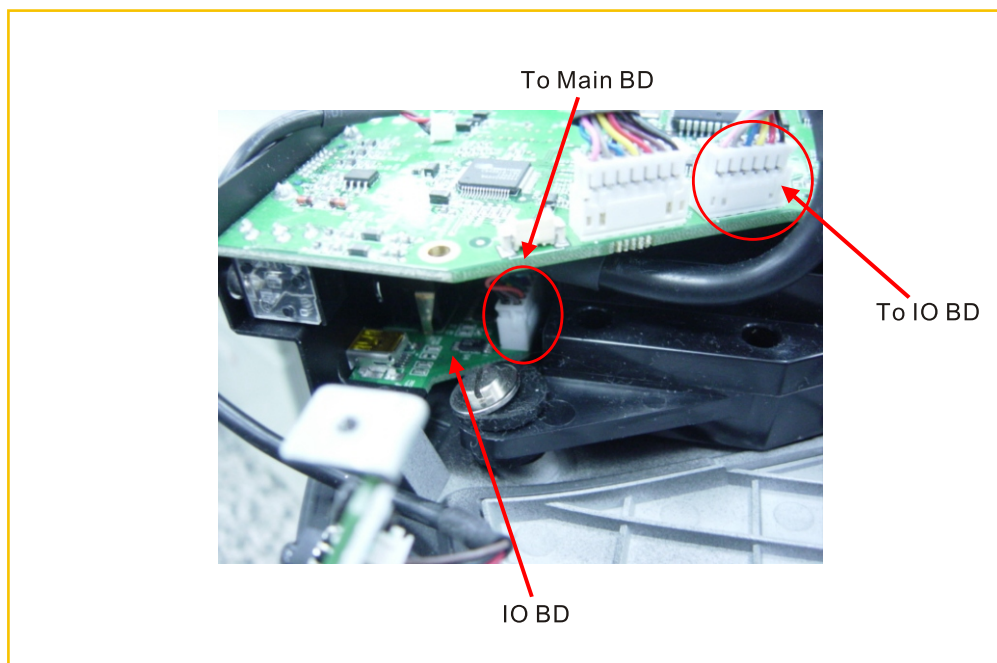


Diagram 10

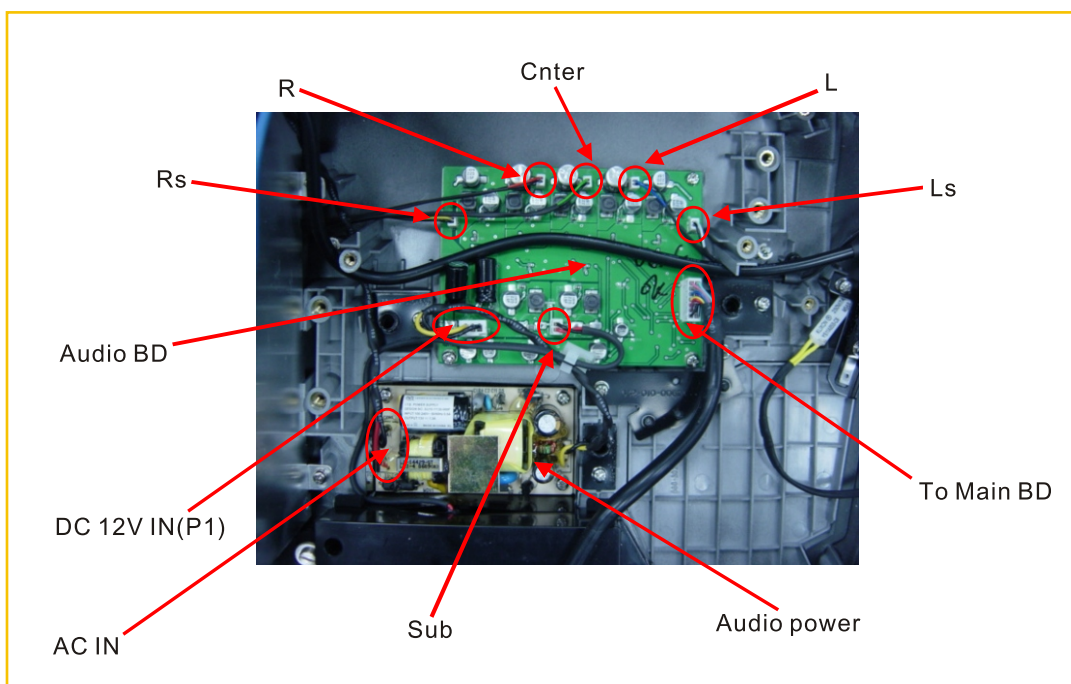


Diagram 11

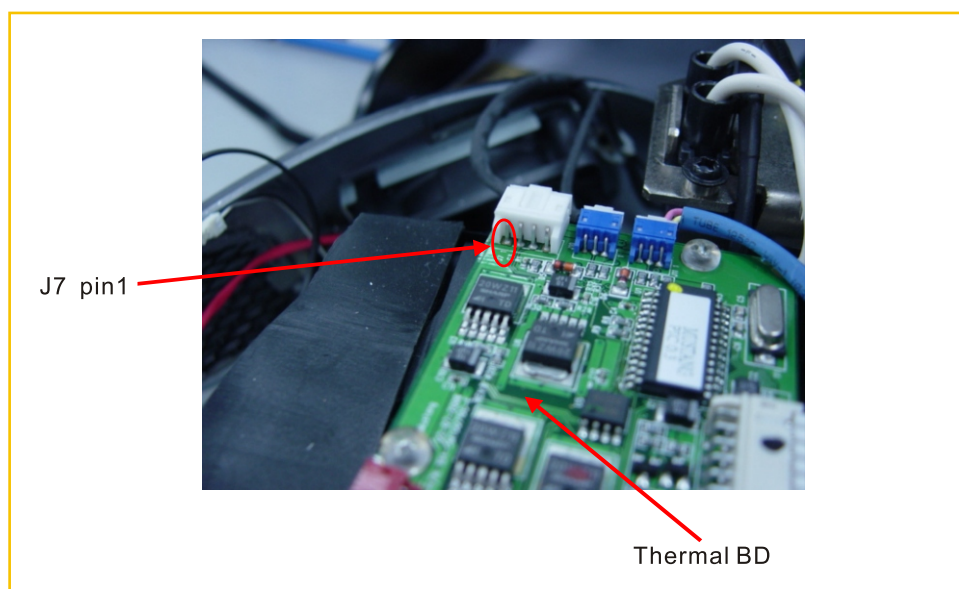


Diagram 12

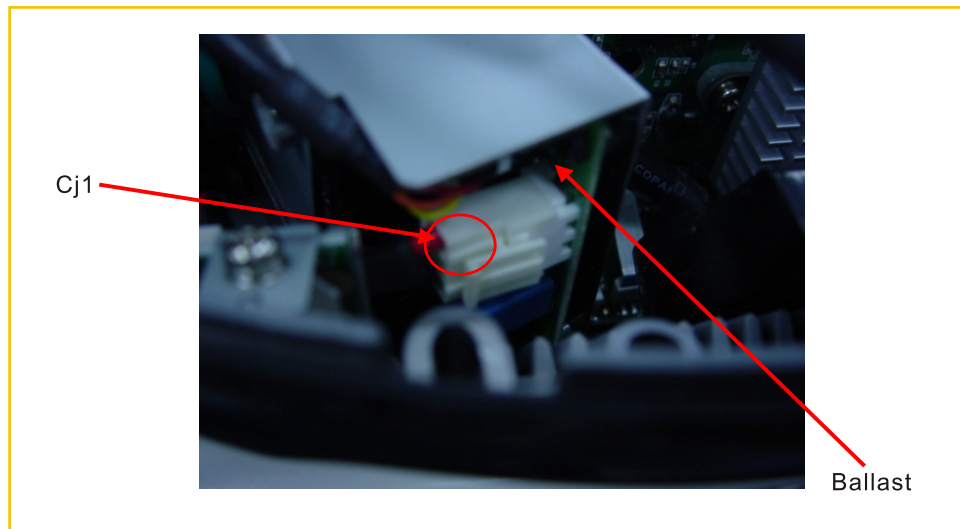


Diagram 13

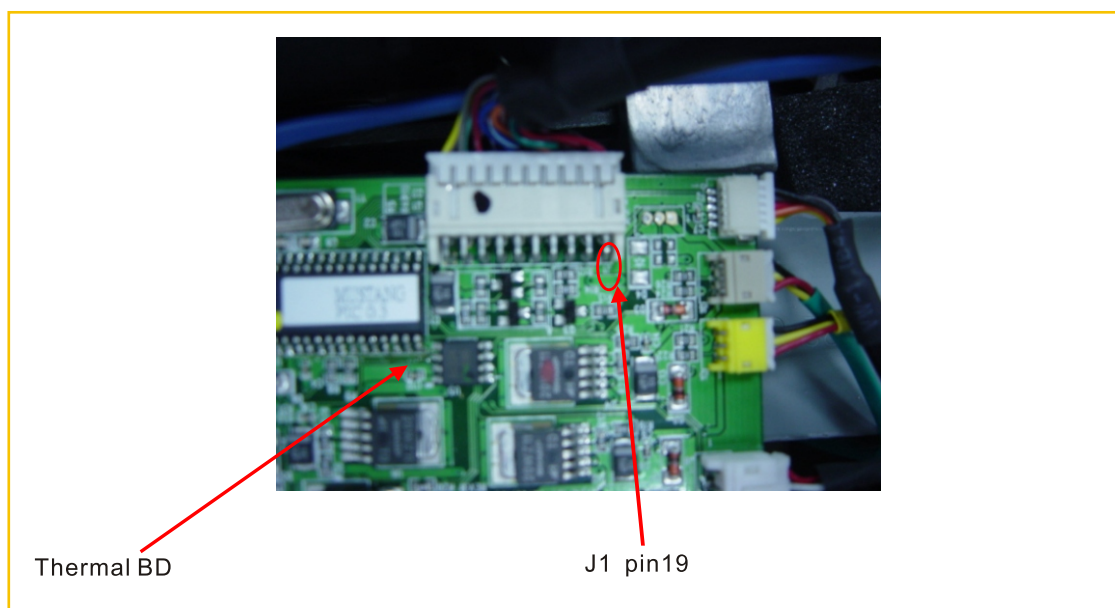
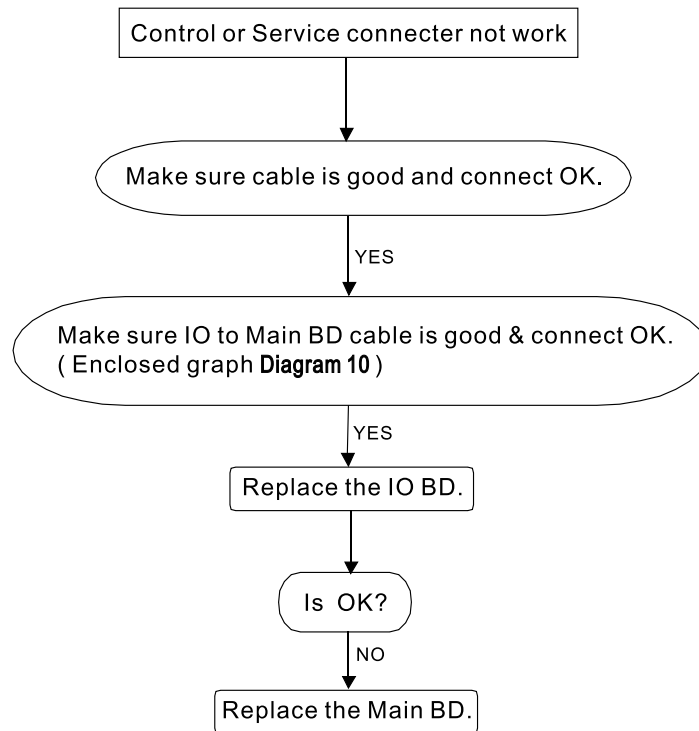


Diagram 14

■ Other Troubleshooting



Electrical Adjustment

■ EA1: Color wheel adjustment

Procedure

No.	Equipment	Quantity	No.	Equipment	Quantity
1	QuantumData802BT	1	2	HDMI to HDMI connector	1

Color wheel adjustment

1. Connect HDMI cable of QuantumData(Diagram 15) to HDMI In connector of projector(Diagram 16). Press menu on the keypad, choose Inputs Video Input HDMI(Diagram 17) press Enter.
2. Change QuantumData signal to DMT1060(Format) / InFocus2(Image). Press up, down and menu to enter engineering mode(Diagram 18)
3. Adjust "Color Wheel Index"
Check color



Diagram 15



Diagram 16



Diagram 17



Diagram 18

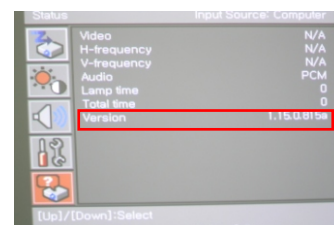


Diagram 19

Please turn off QuantumData before your select image.

■ EA2: VGA ADC adjustment

Procedure

No.	Equipment	Quantity	No.	Equipment	Quantity
1	QuantumData802BT	1	2	VGA cable	1

VGA ADC adjustment

1. Connect VGA cable of QuantumData (Diagram 20) to VGA In connector of projector(Diagram 21). Press menu on the keypad, choose Inputs Video Input Computer(Diagram 22) press Enter.
2. Change QuantumData signal to DMT1060(Format) / BOX 150mm. Press up, down and menu to enter engineering mode(Diagram 23). Choose Start ADC Calibration. After finished, check index in Advanced Factory Menu. Index can not have the same value that quantity over 3.



Diagram 20



Diagram 21

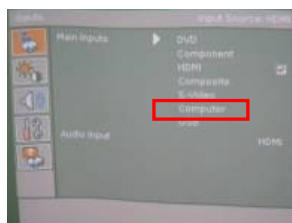


Diagram 22

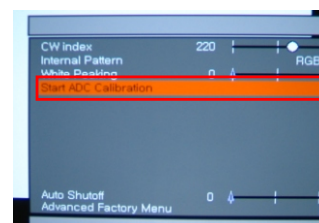


Diagram 23

Please turn off QuantumData before your select image.

Lighting Position Adjustment

■ OA1

Procedure

No.	Equipment	Quantity	No.	Equipment	Quantity
1	Screw driver	2	2	Chroma	1

Brightness Adjustment

1. Loose the 2 screws circled by red push lamp down as red arrow's direction.
2. Drive the screw circled by yellow clockwise.
3. Measure brightness of full white.
4. When brightness goes down, stop drive the screw.
5. Tighten the 2 screws circled by red.

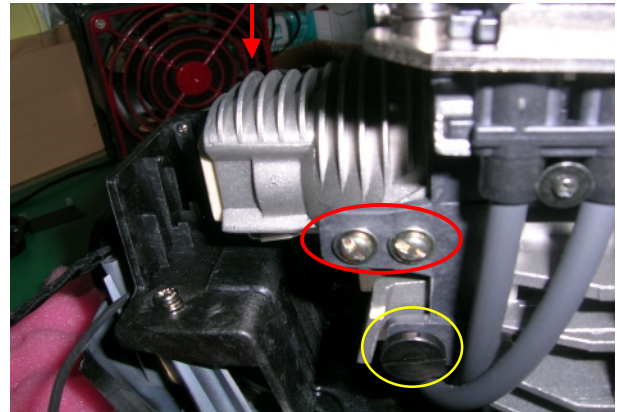


Diagram 24

Please turn off QuantumData before your select image.

Replaced part check list

■ Required Equipment

1. QuantumData
2. Notebook
3. remoter
4. HDMI to HDMI cable
5. VGA to VGA cable
6. audio cable with 3 color
7. DVD disk
8. S-Video cable
9. Video cable
10. Light Meter CL200

Function test check list

Replaced part	Photo	Test item
Top case		FT5
Keybad		FT5
IR board		FT5
Keybad		FT5
keybad cable		FT5
bottom case		OT + FT1~5
Elevator		N/A
Speaker power		Power on test
sound board		OT + FT1~5
Lamp set		OT
Optical engine		OT + FT1~5
AC-SOCKET cable module		Power on test

Replaced part	Photo		Test item
DVD cable			OT + FT1~5
DVD loader			OT + FT1~5
Ballast			Power on test
power supply			Power on test
Thermal-board			Power on test
main board			OT + FT1~5
audio output board			FT3~4
LM751			Power on test
LM750			Power on test
Fan			Power on test
right cover			Power on test
left cover			Power on test

Function test procedure

■ FT1: Computer Signal Test

Procedure					
No.	Equipment	Quantity	No.	Equipment	Quantity
1	PC	1	2	VGA cable	1
3		1			

Computer Signal Test

1. Connect VGA cable of PC to VGA In connector of projector(**Diagram 25**). Press menu on the keypad, choose Inputs Video Input Computer(**Diagram 26**) press Enter.
2. Reset resolution (854X480).
3. Check test pattern.
4. Remove VGA cable.



Diagram 25

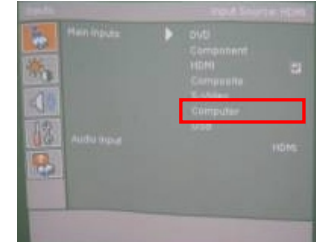
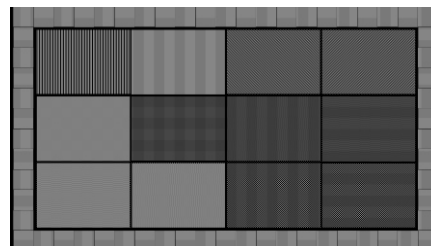
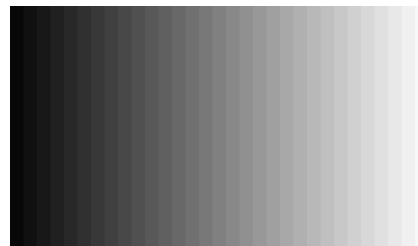


Diagram 26

Pattern



■ FT2: Internal DVD/Coaxial-out/Coaxial-Input

Procedure					
No.	Equipment	Quantity	No.	Equipment	Quantity
1	Amp.DVD player and external speaker	1	2	DVD	2

- DVD TEST (INTERNAL PATTERN)**
 - Put DVD into loader and change signal input to DVD.(Diagram 27)
 - Check color and flicker
 - Check sound
- Coaxial-Out Test**
 - Connect Coaxial cable of Amp to Coaxial- out of projector. Test sound.
 - Remove Coaxial cable.
- Coaxial Input Test**
 - Connect Coaxial cable of DVD(EXTERNAL) to Coaxial-in(Diagram 28) of projector. Search Component.
 - Play DVD. Press up, down and menu to enter engineering mode and choose Speak test. Test sound.

Diagram 27

Diagram 28

■ FT3: S-Video/Composite/Audio-in

Procedure					
No.	Equipment	Quantity	No.	Equipment	Quantity
1	DVD player	1	2	S-Video cable	1
3	DVD(test)	1	4	VGA cable	1
5	Audio in cable	1			

Motional signal test

- connect Video terminal
- connect S-Video terminal
- connect audio in
- Enter menu ->audio in ->analog input
- menu->Inputs Main Inputs Video. Check sound, color and flicker
- menu->Inputs Main Inputs S-Video. Check sound, color and flicker

a

b

c

■ FT4: Component/HDMI

Procedure					
No.	Equipment	Quantity	No.	Equipment	Quantity
1	DVD(test)	1	2	Ypbpr cable	1
3	DVD player	1	4	HDMI to HDMI connector	1

Motional signal test

- 1.connect Ypbpr terminal(**Diagram 29**)
- 2.connect HDMI terminal(**Diagram 30**)
- 3.Enter menu ->inputs ->main inputs-> HDMI check sound, color and flicker.
- 4.Enter menu ->inputs ->main inputs-> component check sound, color and flicker.
- 5.Switch signal of DVD to Ybcr check sound, color and flicker.

Diagram 29

Diagram 30

Diagram 31

■ FT5: Keypad and OSD Function test

Procedure					
No.	Equipment	Quantity	No.	Equipment	Quantity
1	Remoter	1	2		

Keypad and OSD Function test

- 1.ECO mode test
 - a.Choose menu->lamp power(**Diagram 33**)->standard or high, check brightness after test reset to high.
- 2.Keypad Light test
 - a.Choose menu->Keypad Light(**Diagram 32**)->on or off, check LED light on the keypad on or off.
- 3.IR test
 - a.Use hand to block front IR receiver and test remoter.
 - B.Use hand to block back IR receiver and test remoter.

Diagram 32

Diagram 33

Optical test

■ Brightness ≥ 500

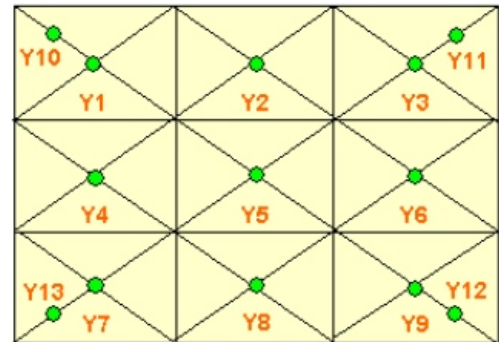
D2. Brightness Measurement

Light Meter CL200

Adjust Focus ring to clear

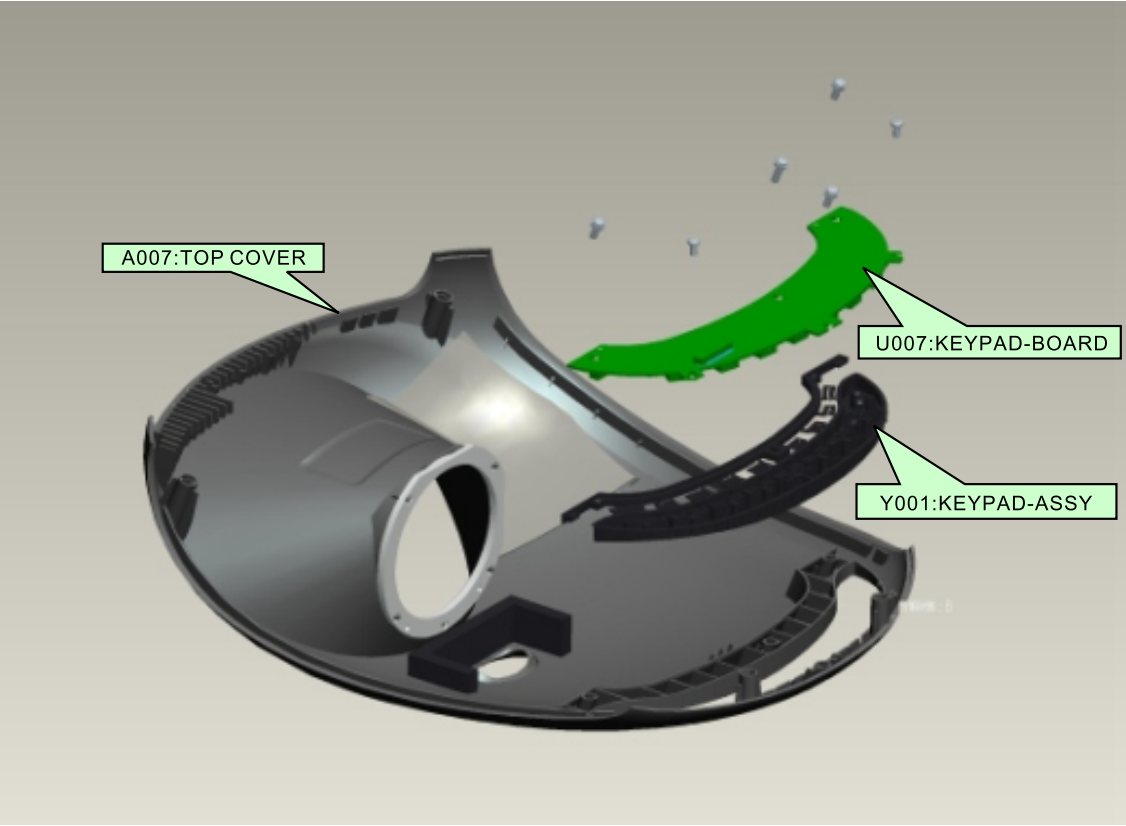
Measuring equation: $([Y1+Y2+...+Y9]/9) \times \text{Projection Area [m}^2\text{]}$

HDMI: Full white Pattern (Chroma build-in pattern)



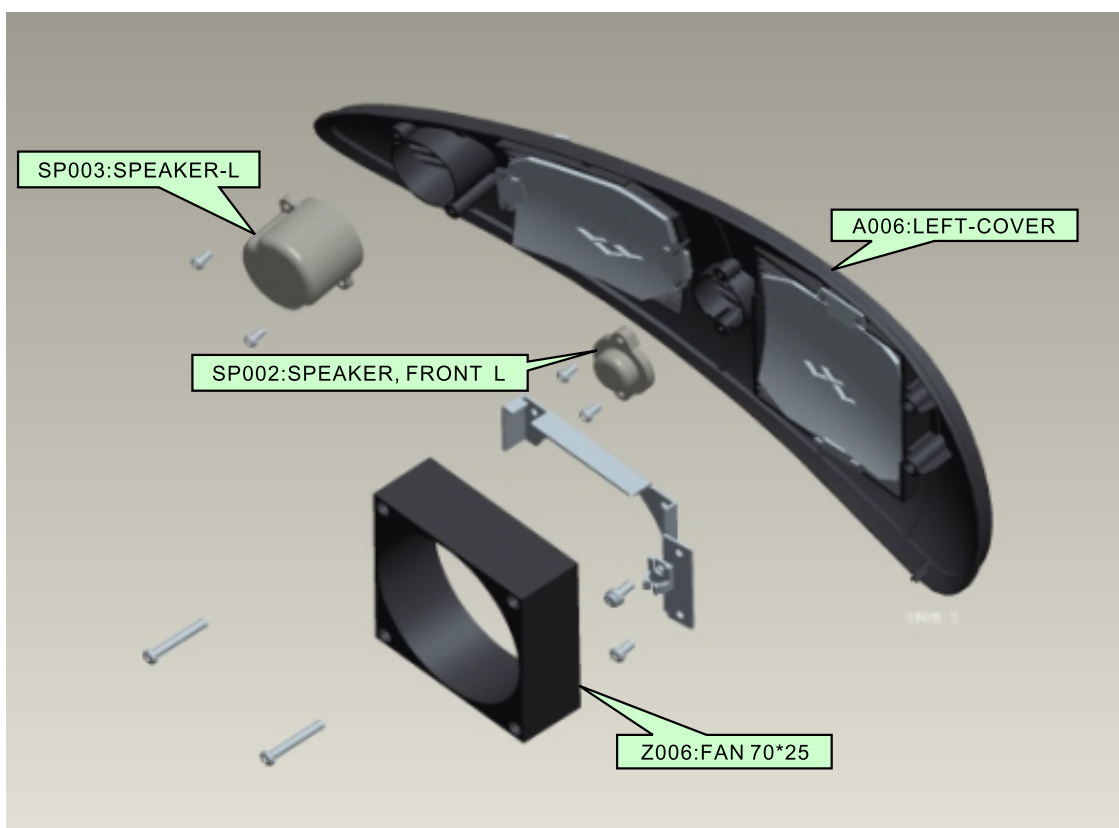
Exploded Drawing

■ Top



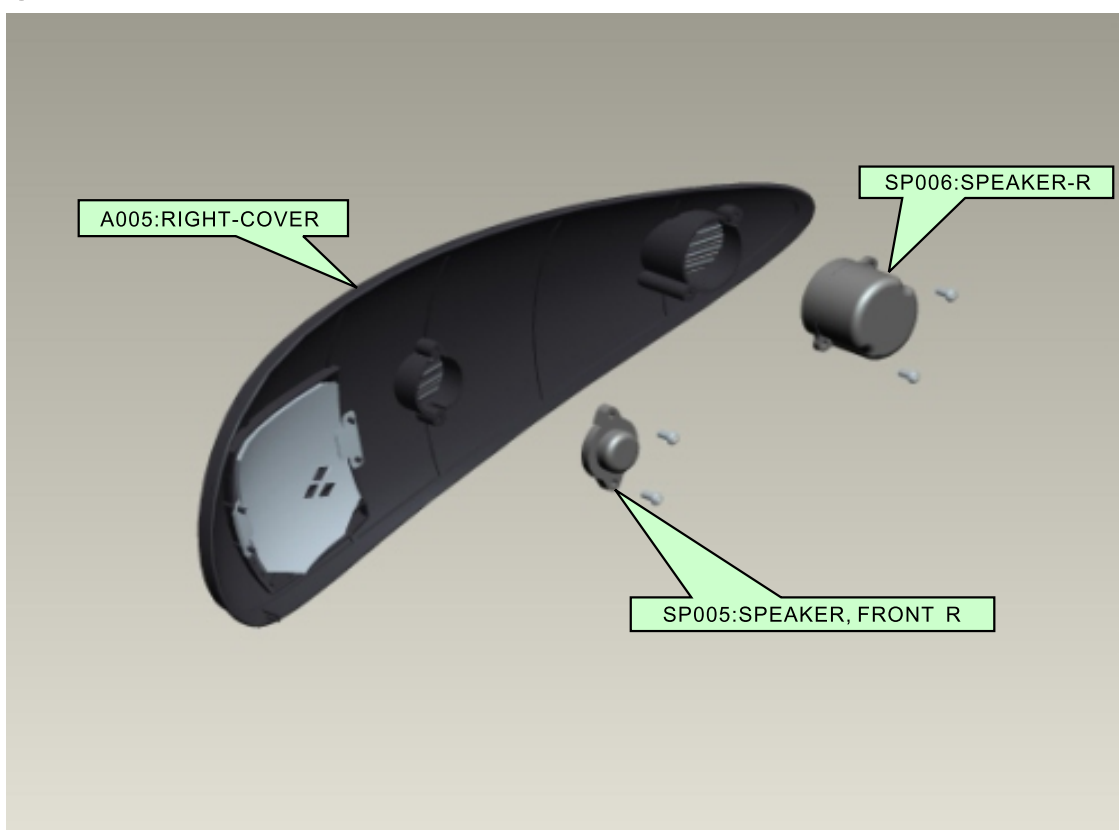
Location No.	Description
A007	TOP COVER
U007	KEYPAD-BOARD
Y001	KEYPAD-ASSY

■ Left



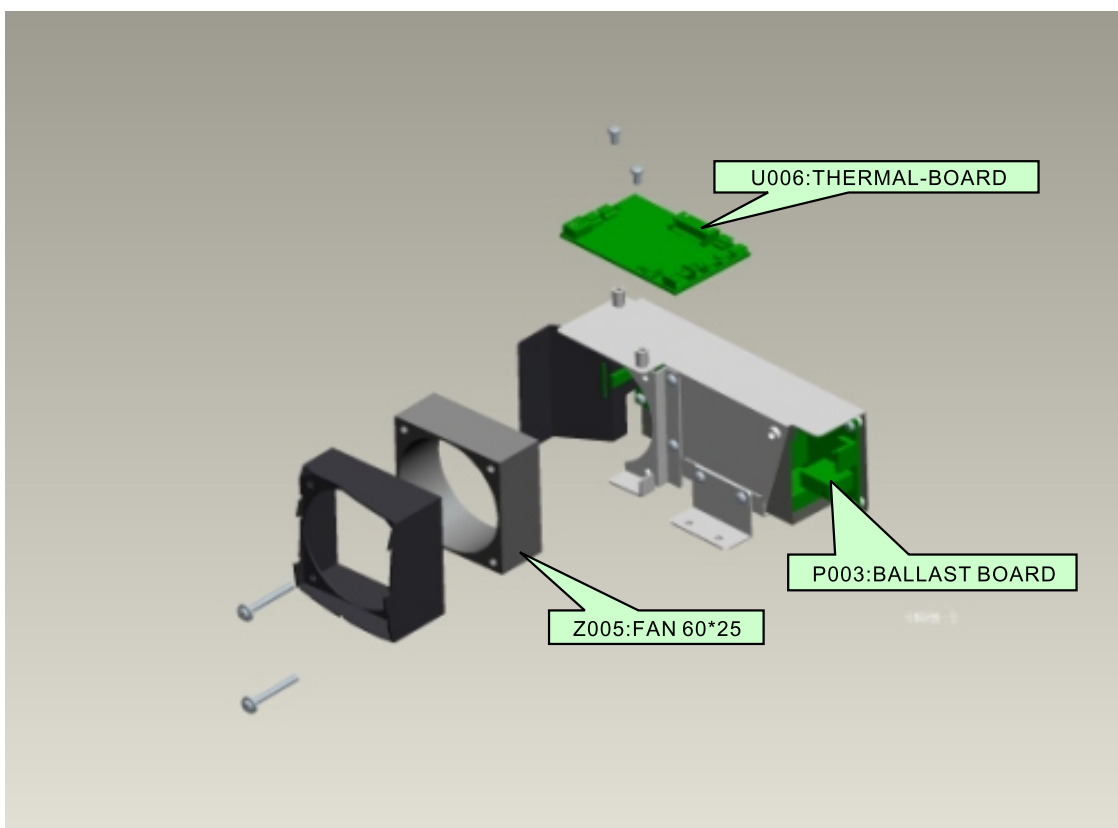
Location No.	Description
A006	LEFT-COVER
SP003	SPEAKER-L
SP002	SPEAKER, FRONT L
Z006	FAN 70*25

■ Right



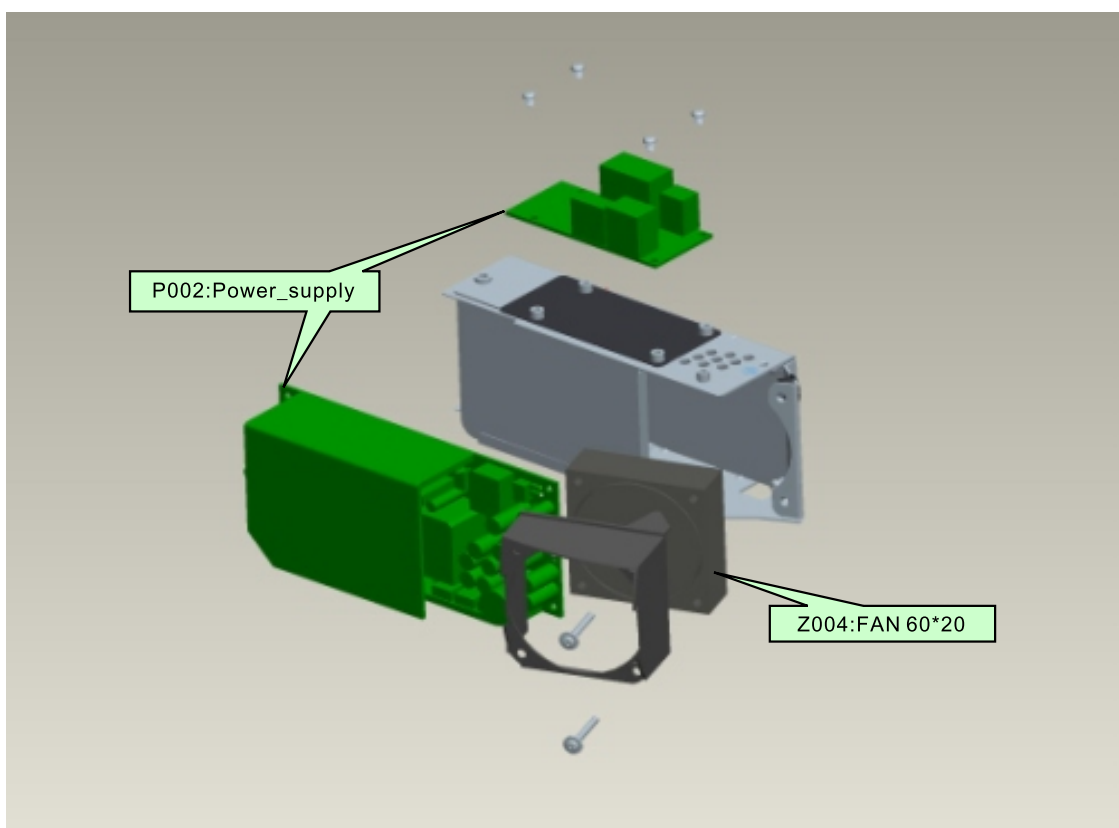
Location No.	Description
A005	RIGHT-COVER
SP006	SPEAKER-R
SP005	SPEAKER, FRONT R

■ Ballast



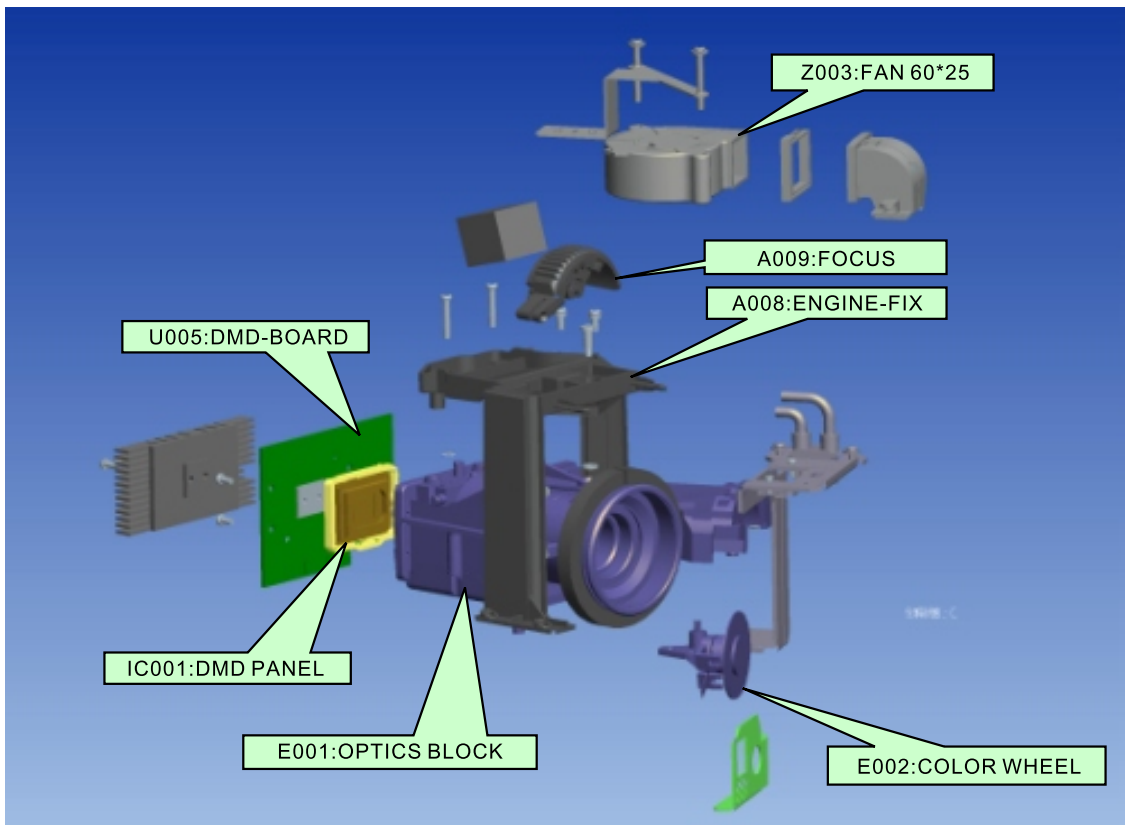
Location No.	Description
P003	BALLAST BOARD
U006	THERMAL-BOARD
Z005	FAN 60*25

■ Power



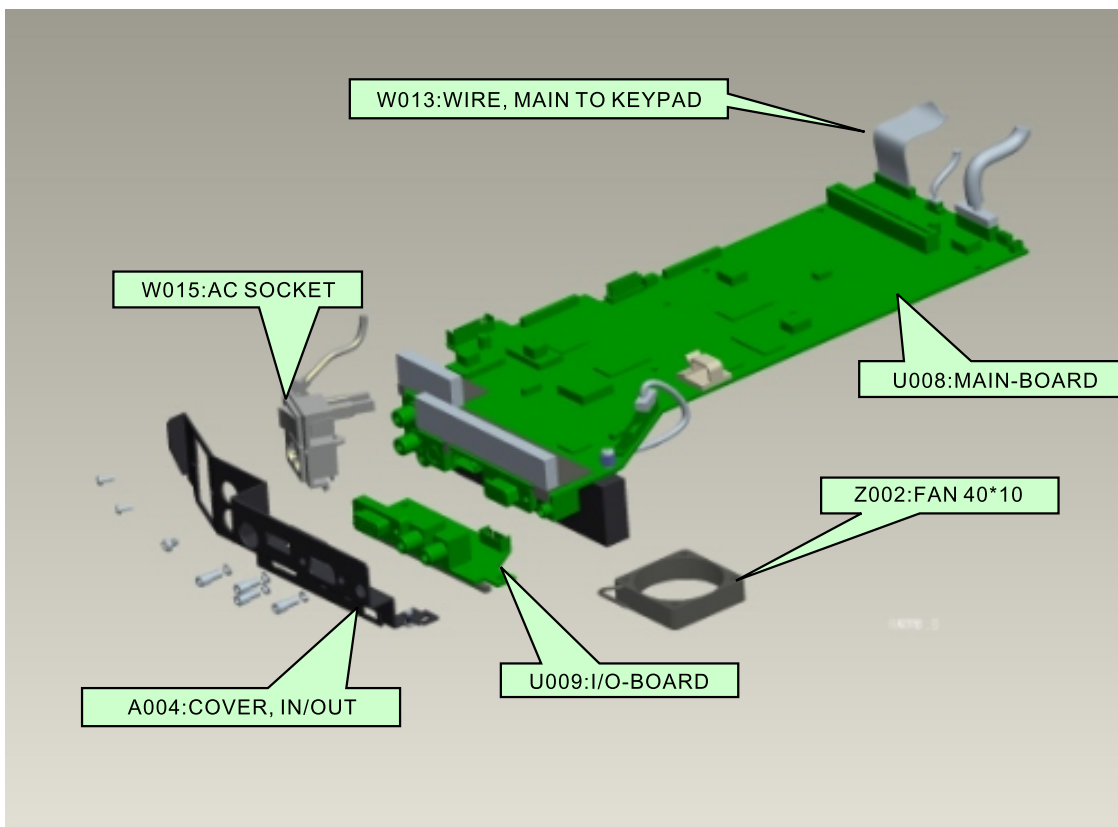
Location No.	Description
P002	Power_supply
Z004	FAN 60*20

■ Optical



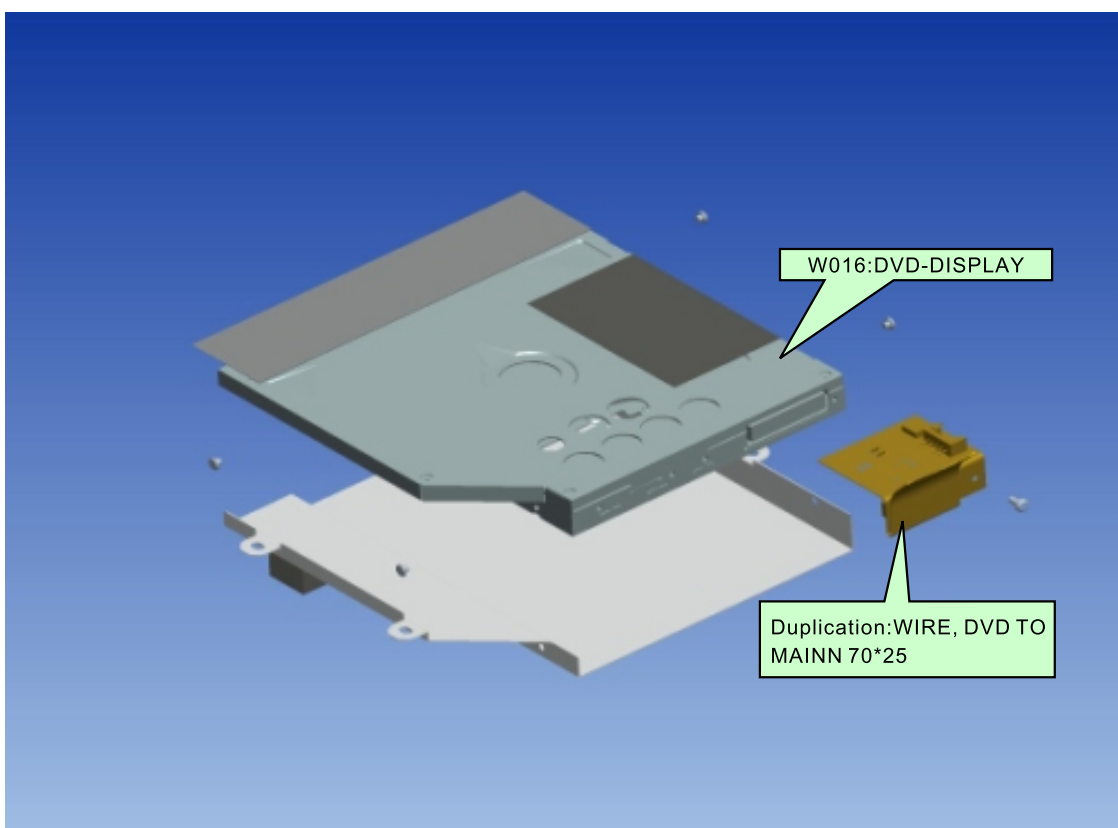
Location No.	Description
E001	OPTICS BLOCK
IC001	DMD PANEL
U005	DMD-BOARD
Z003	FAN 60*25
A009	FOCUS
A008	ENGINE-FIX
E002	COLOR WHEEL

■ Main-Board



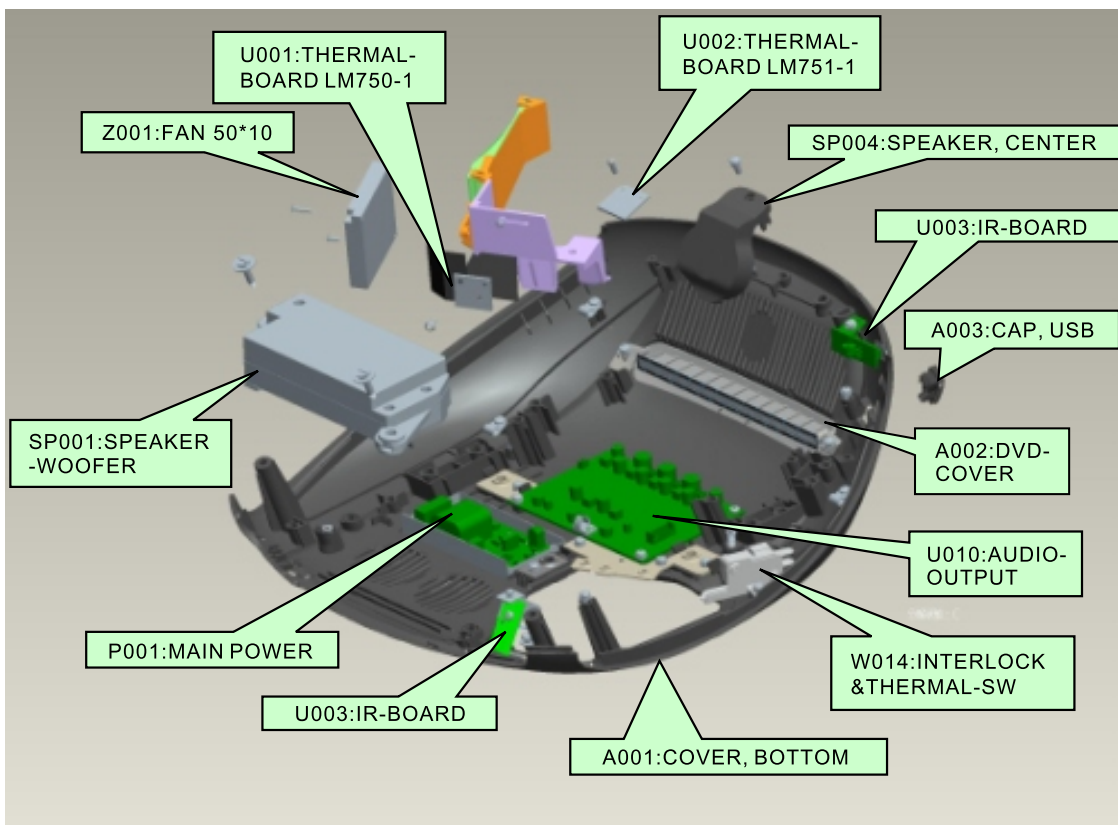
Location No.	Description
U008	MAIN-BOARD
W015	AC SOCKET
A004	COVER, IN/OUT
U009	I/O-BOARD
Z002	FAN 40*10
W013	WIRE, MAIN TO KEYPAD

■ DVD



Location No.	Description
W016	DVD-DISPLAY
Duplication	WIRE, DVD TO MAINN 70*25

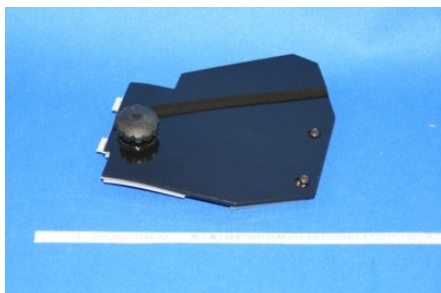
■ Bottom



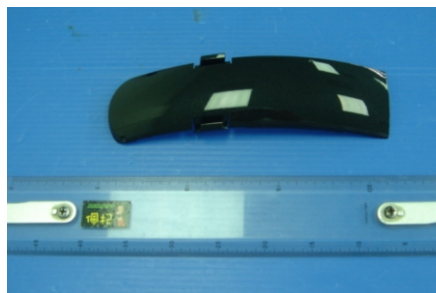
Location No.	Description
A001	COVER, BOTTOM
U003	IR-BOARD
P001	MAIN POWER
SP001	SPEAKER-WOOFER
Z001	FAN 50*10
U001	THERMAL-BOARD LM750-1
U002	THERMAL-BOARD LM751-1
SP004	SPEAKER, CENTER
A003	CAP, USB
A002	DVD-COVER
U010	AUDIO-OUTPUT
W014	INTERLOCK&THERMAL-SW

■ Others

A010
COVER, LAMP



A013
IO-COVER



A012
COVER, IR FRONT



A014
BACKHANDLE-COVER



A011
PROJECTOR-FOOT


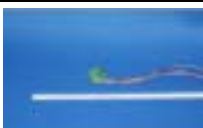


Location No.	Description
A010	COVER, LAMP
A012	COVER, IR FRONT
A011	PROJECTOR-FOOT
A013	IO-COVER
A014	BACKHANDLE-COVER

Spare Parts List

No	Location	Part No	Description	Photo
1	A001	75005575	COVER, BOTTOM	
2	A002	75005576	COVER, DVD	
3	A003	75005598	CAP, USB	
4	A004	75005600	COVER, IN/OUT	
5	A005	75005579	COVER, RIGHT	
6	A006	75005580	COVER, LEFT	
7	A007	75005577	COVER, TOP	
8	A008	75005601	BRAKET, FOCUS RING	
9	A009	75005595	RING, FOCUS	
10	A010	75005568	COVER, LAMP	
11	A011	75005602	FOOT, PROJECTOR FOOT	
12	A012	75005599	COVER, IR FRONT	

No	Location	Part No	Description	Photo
13	A013	75005597	COVER, I/O TERMINAL	
14	A014	75005596	COVER, BACKHANDLE	
15	A015	75005618	CARTON BOX	
16	A016	75005625	LABLE, SPEC	
17	A017	75005626	LABLE, CAUTION	
18	A018	75005619	CARTON BOX for JAPAN	
19	B001	75005611	I/O BOARD GASKET-1	
20	B002	75005612	I/O BOARD GASKET-2	
21	E001	75005569	OPTICS BLOCK	
22	E002	75005586	MOTOR, COLOUR WHEEL ASSY	
23	IC001	75005587	DMD	

No	Location	Part No	Description	Photo
24	P001	75005615	PC BOARD ASSY, POWER, AMPLIFIE	
25	P002	75005616	PC BOARD ASSY, MAIN POWER	
26	P003	75005617	PC BOARD ASSY, BALLAST	
27	SP001	75005574	SPEAKER, WOOFER	
28	SP002	75005631	SPEAKER, FRONT L	
29	SP003	75005629	SPEAKER, L	
30	SP004	75005628	SPEAKER, CENTER	
31	SP005	75005632	SPEAKER, FRONT R	
32	SP006	75005630	SPEAKER, R	
33	U001	75005583	PC BOARD ASSY, THERMAL, LAMP	
34	U002	75005584	PC BOARD ASSY, THERMAL, INTAKE	

No	Location	Part No	Description	Photo
35	U003	75005585	PC BOARD ASSY, REMOTE	
36	U005	75005582	PC BOARD ASSY, DMD	
37	U006	75005570	PC BOARD ASSY, THERMAL	
38	U007	75005578	PC BOARD ASSY, KEYPAD	
39	U008	75005572	PC BOARD ASSY, MAIN	
40	U009	75005581	PC BOARD ASSY, D-SUB/MINI-USB	
41	U010	75005573	PC BOARD ASSY, AUDIO OUT	
42	W013	75005589	WIRE, MAIN TO KEYPAD	
43	W014	75005567	SWITCH, INTERLOCK/THERMAL	
44	W015	75005610	SOCKET, AC	
45	W016	75005571	DVD UNIT	

No	Location	Part No	Description	Photo
46	W017	75005588	WIRE, DVD TO MAIN	
47	Y001	75005609	KEYPAD ASSY	
48	Y002	75005614	REMOCON HAND UNIT	
49	Y003	75005624	OWNERSMANUAL,JAPAN	
50	Y004	75005620	OWNERS MANUAL, CHINESE(TW)	
51	Y005	75005592	CABLE, AC, UK	
52	Y006	75005590	CABLE, AC, EU	
53	Y007	75005591	CABLE, AC, US	
54	Y008	75005621	OWNERS MANUAL, ENG, FRE, SPA	
55	Y009	75005593	CABLE, AC, JP	
56	Y010	75005622	OWNERS MANUAL, POR, ITA, GER	

No	Location	Part No	Description	Photo
57	Y011	75005627	CABLE RGB	
58	Y012	75005623	OWNERS MANUAL, ENG, RUS	
59	Y013	75005594	CABLE, USB A TYPE TO MIN USB	
60	Y014	75005613	ADAPTOR, SCART	
61	Z001	75005608	FAN, SIROCCO	
62	Z002	75005603	FAN, CPU	
63	Z003	75005607	FAN, LAMP, SIROCCO	
64	Z004	75005604	FAN, POWER	
65	Z005	75005606	FAN, BALLAST	
66	Z006	75005605	FAN, EXHAUST	

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